

# PROJECT STUDY REPORT-PROJECT DEVELOPMENT STUDY (PSR-PDS)

To

## Request Programming for Capital Support (Project Approval and Environmental Document Phase) In the 2012 STIP

### US 101 Express Lanes Project

On Route US 101, in Santa Clara County

Between US 101/Dunne Avenue Interchange in Morgan Hill  
(Just south of the US 101/Cochrane Road Interchange  
in Morgan Hill)

And Santa Clara/San Mateo County Line (Just north of the  
US 101 Oregon Expressway/Embarcadero Road  
Interchange in Palo Alto) including 1.1 mile of SR 85  
in Mountain View to Connect the SR 85 Express  
Lanes to the US 101 Express Lanes

APPROVAL RECOMMENDED:

  
\_\_\_\_\_  
**JOHN RISTOW**

SANTA CLARA VALLEY TRANSPORTATION AUTHORITY (VTA),  
ACCEPTS RISKS IDENTIFIED IN THIS PSR-PDS AND ATTACHED RISK REGISTER

APPROVAL RECOMMENDED:

  
\_\_\_\_\_  
**NAIM (NICK) SALEH**

CALTRANS PROJECT MANAGER


APPROVED:

  
\_\_\_\_\_  
**BIJAN SARTIPI**  
DISTRICT DIRECTOR

  
\_\_\_\_\_  
DATE

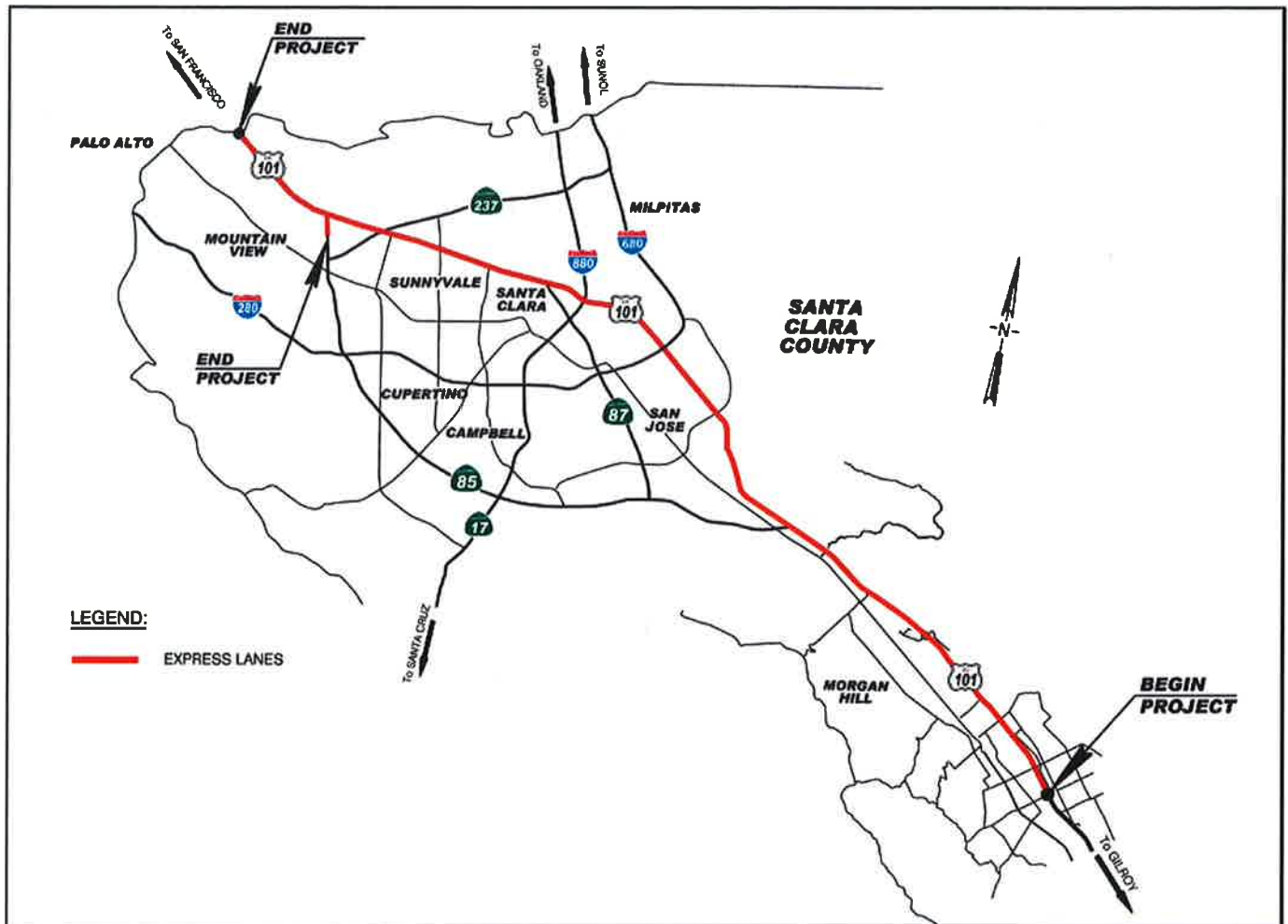
04 - SCI - 101 - PM 16.00/52.55  
04 - SCI - 85 - PM 23.0/24.1  
EA #04-2G710K, 0400001163  
July 2012

This Project Study Report (Project Development Support) has been prepared under the direction of the following Registered Engineer. The registered civil engineer attests to the technical information contained herein and the engineering data upon which recommendations, conclusions, and decisions are based.

  
\_\_\_\_\_  
REGISTERED CIVIL ENGINEER

08/03/2012  
\_\_\_\_\_  
DATE





On Route US 101, in Santa Clara County

Between US 101/Dunne Avenue Interchange in Morgan Hill  
(Just south of the US 101/Cochrane Road Interchange  
in Morgan Hill)

And Santa Clara/San Mateo County Line (Just north of the  
US 101 Oregon Expressway/Embarcadero Road  
Interchange in Palo Alto) including 1.1 mile of SR 85  
in Mountain View to Connect the SR 85 Express  
Lanes to the US 101 Express Lanes

**TABLE OF CONTENTS**

<b><u>SECTION</u></b>	<b><u>PAGE</u></b>
<b>1 INTRODUCTION.....</b>	<b>1</b>
<b>2 BACKGROUND .....</b>	<b>2</b>
<b>3 PURPOSE AND NEED .....</b>	<b>4</b>
3.1 PURPOSE .....	4
3.2 NEED .....	4
<b>4 TRAFFIC ENGINEERING ASSESSMENT .....</b>	<b>8</b>
4.1 TRAFFIC REPORTS.....	8
4.2 ANALYSIS TOOLS.....	8
4.3 DATA SOURCES.....	8
4.4 ANALYSIS PERIODS.....	9
4.5 ANALYSIS YEARS .....	9
4.6 ANALYSIS LIMITS .....	9
4.7 PERFORMANCE MEASURES .....	9
<b>5 DEFICIENCIES.....</b>	<b>10</b>
5.1 TRAFFIC.....	10
5.2 ACCIDENT ANALYSIS.....	11
<b>6 CORRIDOR AND SYSTEM COORDINATION.....</b>	<b>13</b>
6.1 IDENTIFY SYSTEMS .....	13
6.2 STATE PLANNING.....	13
6.3 REGIONAL PLANNING .....	15
6.4 LOCAL PLANNING .....	16
6.5 PROGRAMMED AND PLANNED PROJECTS WITHIN THE PROJECT LIMITS .....	16
6.6 TRANSIT PLANNING .....	17
<b>7 ALTERNATIVES.....</b>	<b>18</b>
7.1 DESCRIPTIONS .....	18
A) <i>The No Build Alternative</i> .....	18
B) <i>Build Alternative</i> .....	18
Design Variations.....	19
US 101/SR 85 Direct Connectors.....	20
Structures .....	20
Toll Operation .....	22
Lane Operation.....	22
Customer Service and Account Management.....	22
SOV Transaction Processing.....	22
HOV Transaction Processing .....	23
Violation Processing .....	23
Enforcement.....	23
Ownership, Maintenance and Operation Agreements .....	24
<b>8 RIGHT OF WAY .....</b>	<b>25</b>
8.1 RIGHT OF WAY: .....	25
8.2 RAILROADS:.....	26
8.3 UTILITIES:.....	26

<b>9</b>	<b>STAKEHOLDER INVOLVEMENT.....</b>	<b>26</b>
<b>10</b>	<b>ENVIRONMENTAL DETERMINATION/DOCUMENT .....</b>	<b>27</b>
<b>11</b>	<b>FUNDING.....</b>	<b>27</b>
11.1	CAPITAL COST ESTIMATE .....	27
11.2	CAPITAL SUPPORT ESTIMATE .....	28
<b>12</b>	<b>SCHEDULE.....</b>	<b>28</b>
<b>13</b>	<b>FHWA COORDINATION.....</b>	<b>28</b>
<b>14</b>	<b>PROJECT CONTACTS.....</b>	<b>28</b>
<b>15</b>	<b>ATTACHMENTS .....</b>	<b>29</b>

# 1 INTRODUCTION

Santa Clara Valley Transportation Authority (VTA), in cooperation with the California Department of Transportation (Caltrans), proposes to convert the existing High-Occupancy Vehicle (HOV) lanes along the United States Highway 101 (US 101) to High-Occupancy Toll (HOT) lanes (hereafter known as express lanes) and add a second express lane for the majority of the corridor. The express lanes will allow HOVs and eligible clean air vehicles to continue to use the lanes for free and eligible single-occupant vehicles (SOVs) to pay a toll. The 36.55 miles of express lanes will be implemented on northbound and southbound US 101 from the Dunne Avenue interchange in Morgan Hill to the Santa Clara/San Mateo County line just north of the Oregon Expressway/Embarcadero Road interchange in Palo Alto. The project will also convert the US 101/State Route (SR) 85 HOV direct connectors in Mountain View to express lane connectors and restripe the northern 1.1 mile of SR 85 to introduce a buffer separating the mixed flow lanes from the express lane and connecting the SR 85 express lanes to the US 101 express lanes. A project Vicinity Map and Project Location Map are provided in Attachment A. The project length is 36.55 miles on US 101 and 1.1 miles on SR 85, for a total of 37.65 miles.

<b>Project Limits</b> (Dist., Co., Rte., PM)	04-SCI-101, PM 16.00/52.55 04-SCI-85, PM 23.0/24.1
<b>Number of Alternatives</b>	Two (2) including the “no build”
<b>Capital Outlay Support for PA/ED</b>	\$6.0M
<b>Capital Construction Cost Range</b> (excluding “no build”)	\$332M to \$1.2B
<b>Right of Way Cost Range</b> (excluding “no build”)	\$0.5M to \$286M
<b>Funding Source</b>	VTA Local Funds and other additional funds to be determined
<b>Type of Facility (conventional, expressway, freeway)</b>	Freeway
<b>Number of Structures</b>	To Be Determined
<b>Anticipated Environmental Determination/Document</b>	Initial Study/Environmental Assessment (IS/EA)
<b>Legal Description</b>	On US 101 in Santa Clara County in Morgan Hill, San Jose, Santa Clara, Sunnyvale, Mountain View and Palo Alto from the US 101/ Dunne Avenue interchange to the Santa Clara/San Mateo County Line
<b>Project Category</b>	4A

The support, right of way, and construction components of the project are preliminary estimates. A Project Report will serve as the programming document for the remaining support and capital components of the project and as approval of the “selected” alternative.

This project is a HB5 Program project and has been assigned the Project Development Processing Category 4A because it includes widening of the freeway and adding new freeway lanes.

The project is listed in the 2009 Santa Clara Valley Transportation Plan 2035 (VTP 2035) as the following Reference Numbers:

- VTP ID H3 – US 101 Express Lanes: San Mateo county line to SR 85 in Mountain View (Conversion)
- VTP ID H4 - US 101 Express Lanes: SR 85 (San Jose) to Cochrane Rd. (Conversion)
- VTP ID H5 - US 101 Express Lanes: SR 85 in Mountain View to SR 85 in San Jose (Conversion)

The project is also listed in the Metropolitan Transportation Commission's (MTC's) Regional Transportation Plan (RTP) 2035 as Reference Number 230662, "U.S. 101 in Santa Clara County from San Mateo/Santa Clara County line to Cochrane Road - convert HOV lanes to express lanes."

The project is included in the Transportation Improvement Program (TIP) - ID Number SCL110002.

Caltrans is the California Environmental Quality Act (CEQA) lead agency for the project. Effective July 1, 2007, Caltrans is also the National Environmental Policy Act (NEPA) lead agency per assignment of responsibilities by the Federal Highway Administration pursuant to Title 23, United States Code, Section 327.

The project is anticipated to be ready to advertise for bid in Winter 2014 and open to traffic by Winter 2015.

## **2 BACKGROUND**

Assembly Bill 2032, signed by Governor Schwarzenegger in 2004, provides legislative authority for VTA to implement and operate two corridors of High Occupancy Toll (HOT) lanes (referred to as express lanes) within Santa Clara County. These express lanes, a form of roadway congestion pricing, essentially facilitate use of available capacity in carpool lanes by allowing solo drivers to use, for a fee, the lanes that ordinarily would have been available for only carpoolers, transit, motorcycles, and vehicles with clean air stickers. The fees would change dynamically in response to existing congestion levels and available capacity in the carpool and mixed flow lanes.

VTA has followed through on the authority granted by AB 2032 to develop the Silicon Valley Express Lanes Program. The following is a brief timeline on the major developments related to this program:

- September 2003 - Staff presentation on HOT Lanes to VTA Board of Directors as per Ad Hoc Financial Stability Committee recommendation.
- April 2004 - VTA staff commences HOT lane feasibility study.

- September 2004 - Governor Schwarzenegger signs AB 2032 allowing VTA and two other agencies to conduct, administer, and operate a value pricing program on any two transportation corridors included in the carpool lane system as a demonstration.
- November 2004 - Professor Asha Weinstein of San Jose State University prepares working paper assessing the equity implications of HOT lanes for VTA.
- September 2005 - VTA Board authorizes VTA staff to proceed to the preliminary engineering phase for the development of HOT lanes on SR 85 and/or US 101 on the basis of the findings from the feasibility study.
- January 2007 - VTA staff commences preliminary engineering phase for SR 85 and US 101 HOT lanes with the aim of identifying the first segment for HOT lane implementation in Santa Clara County.
- October 2007 - Governor Schwarzenegger signs AB 574 allowing VTA to operate HOT lanes on a permanent basis by removing the “demonstration” status and also allowing issuance of bonds, backed by HOT lane program revenues, to finance HOT lanes construction.
- March 2008 - VTA Board approves VTP 2035 project lists for submittal to Metropolitan Transportation Commission (MTC), including a list of HOT lane projects.
- July 2008 - MTC approves a \$223 billion Regional Transportation Plan for the Bay Area that describes a regional network of Express Lanes (MTC Resolution 3868) consisting of about 500 miles of carpool lane conversion to express lane operations and another 300 miles of new express lanes to complete the gaps and extend the existing carpool network in the Bay Area. MTC also approved the HOT Network Implementation Principles as part of this resolution.
- December 2008 - VTA Board of Directors approved the Silicon Valley Express Lanes Program for implementation including the US 101 Express Lanes Project.
- October 2010 - Caltrans approves SR 85 Express Lanes Project’s PSR.
- April 2011 - Caltrans releases the Traffic Operation Policy Directive (TOPD) 11-02 for Managed Lane Design. TOPD 11-02 is a statewide policy directive for the future planning, design, and operations of HOV and express lanes. The directive sets forth principles to guide decision making on the development and operations of these lanes as well as best engineering practices and future requirements. The guidelines include considering the following measures if analysis determines them to be practical and beneficial:
  - Implementing congestion pricing to utilize the full capacity of underutilized HOV lanes
  - Planning for two HOV or express lanes in each travel direction.

A key component of the vision for the corridor is to try to utilize the most out of the existing roadway footprint and capacity to keep pace with the mobility needs for the corridor via implementation of express lanes. In addition to providing commuters with an option to use express lanes with predictable travel time, express lanes could also prove to be a source of revenue for operations and maintenance as well as for longer term capital projects to extend



mobility, improve connectivity and expand transit in the corridor. The alternative could be to move forward with the past model of a transportation system relying on traditional funding sources for extensive roadway expansion projects in keeping pace with the area's mobility needs. It has been shown that this model is not sustainable due to diminishing traditional funding sources.

### 3 PURPOSE AND NEED

Congestion within Santa Clara County continues to increase along with the cost to build additional capacity. Traffic operations along the US 101 corridor between Morgan Hill and Palo Alto continues to exhibit bottlenecks, delays, and queuing in both the morning (AM) peak and the afternoon (PM) peak directions. The project purpose and need are discussed below.

#### 3.1 Purpose

The purpose of the project is to:

- Manage traffic congestion in the most congested HOV segments of the freeway between the SR 85 junction in south San Jose and the Oregon Expressway/Embarcadero Road Interchange in Palo Alto, and
- Maintain consistency with provisions defined in Assembly Bill 2032 (2004) and Assembly Bill 574 (2007) to implement express lanes in the US 101 and SR 85 corridor.

#### 3.2 Need

In Santa Clara County, US 101 is a freeway that typically has one HOV lane and three mixed-flow lanes in each direction with auxiliary lanes in some segments. Within the project limits, US 101 carries up to 256,000 vehicles per day, including HOV traffic (Caltrans 2011), between Morgan Hill in the south and Palo Alto to the north<sup>1</sup>.

High transportation demand in several segments of the mixed-flow lanes causes substantial congestion and reduced speeds in these lanes. During the peak periods (6 a.m. to 9 a.m. and 3 p.m. to 6 p.m.), US 101 cannot accommodate all of the traffic demand in the corridor resulting in "Bottlenecks" in the mixed-flow lanes at many freeway segments. As a result, there are segments of US 101 where the mixed-flow lanes function below the posted speed limit of 65 mph.

---

<sup>1</sup> Caltrans 2011. Traffic Operational Assessment, San Francisco Bay Area Backbone Express Lanes Network, August 31, 2011, California Department of Transportation, District 4 – Office of Highway Operations. URL: [http://www.mtc.ca.gov/planning/hov/Caltrans\\_Letter\\_of\\_Support\\_and\\_Ops\\_assesment\\_09-02-2011.pdf](http://www.mtc.ca.gov/planning/hov/Caltrans_Letter_of_Support_and_Ops_assesment_09-02-2011.pdf).

Based on existing traffic conditions information and field observations, the following mixed flow lane bottlenecks have been identified.<sup>2</sup>

#### Northbound AM

- Tully Road Loop On-Ramp to Tully Road Diagonal On-Ramp: The queue from this bottleneck forms around 7:10 AM and dissipates by 9:30 AM. It extends back to the Hellyer Avenue On-Ramp (approximately 3.6 miles), overlapping with a secondary bottleneck observed within this bottleneck. The segment between Capitol Expressway On-Ramp and Tully Road Off-Ramp was observed to be a secondary bottleneck.
- Oakland Road On-Ramp to northbound I-880 Off-Ramp: The queue from this bottleneck forms around 7:15 AM and dissipates by 9:30 AM. It extends back to the Alum Rock Ave Off-Ramp (approximately 2.5 miles). At times, the segment between McKee On-Ramp and Old Oakland Rd Off-Ramp was observed to be a secondary bottleneck or even the controlling bottleneck in this area.
- Trimble Road On-Ramp to Montague Expressway Off-Ramp: The queue from this bottleneck forms around 7:10 AM and dissipates by 10:00 AM. It extends back to the Old Bayshore Highway Off-Ramp (approximately 2.5 miles).
- Shoreline Boulevard On-Ramp to northbound Rengstorff Ave Off-Ramp: The queue from this bottleneck forms around 7:00 AM and dissipates by 10:00 AM. It extends back to the Moffett Boulevard Off-Ramp (approximately 1.5 miles).

#### Southbound AM

- Oregon Expressway On-Ramp to San Antonio Road Off-Ramp: The queue from this minor bottleneck forms around 8:30 AM and dissipates by 9:45 AM and is mainly controlled by the University Avenue to Oregon Expressway bottleneck identified above. It extends approximately 0.5 miles north of the Embarcadero Road Off-Ramp.

#### Northbound PM

- Oregon Expressway/Embarcadero Road On-Ramp to University Avenue Off-Ramp: The queue from this bottleneck forms around 3:45 PM and dissipates by 6:30 PM. It extends back through the Oregon Expressway/Embarcadero Road interchange, and is largely controlled by the upstream bottleneck from San Antonio Road to Oregon Expressway identified below.

---

<sup>2</sup>DKS Associates. Existing Conditions and Model Calibration Report, Draft, prepared for Santa Clara Valley Transportation Authority. September 2011,

- San Antonio Road On-Ramp to Oregon Expressway/Embarcadero Road Off-Ramp: The queue from this bottleneck forms around 3:45 PM and dissipates by 6:45 PM. It extends back to the Ellis Street Off-Ramp (approximately 3.8 miles), overlapping with a secondary bottleneck observed within this bottleneck. The segment between Shoreline Boulevard On-Ramp and northbound Rengstorff Ave Off-Ramp was observed to be a secondary bottleneck.

#### Southbound PM

- Oregon Expressway On-Ramp to San Antonio Road Off-Ramp: The queue from this bottleneck forms around 4:10 PM and dissipates by 6:45 PM. It extends back to between the Marsh Rd and Woodside interchanges (approximately 4.0 mi).
- Rengstorff Avenue On-Ramp to Old Middlefield Way On-Ramp: The queue from this bottleneck forms around 4:10 PM and dissipates by 6:15 PM. It extends back to the San Antonio Road Off-Ramp (approximately 1.0 mile) where the queue spills over and merges with the Oregon Expressway to San Antonio Road bottleneck identified above.
- De La Cruz Boulevard On-Ramp to State Route 87 Off-Ramp: The queue from this bottleneck forms around 3:15 PM and dissipates by 7:00 PM. It extends back to the Lawrence Expressway Off-Ramp (approximately 3.6 miles) although some data shows the queue extends only to the San Tomas/Montague Expressway interchange.
- Oakland Road On-Ramp to McKee Road Off-Ramp: The queue from this bottleneck forms around 4:10 PM and dissipates by 6:35 PM. It extends back to the Old Bayshore Highway On-Ramp (approximately 1.3 miles).
- Between the lane drop downstream of the Story Road On-Ramp and I-280/I-680 On-Ramp: The queue from this bottleneck forms around 3:00 PM and dissipates by 7:00 PM. It extends back to the Santa Clara Street On-Ramp (approximately 1.5 miles).
- Tully Road on-Ramp to Capitol Expressway off-Ramp– The queue from this bottleneck forms around 4:30 PM and dissipates by 7:00 PM. It extends back to the SB Story Road Off-Ramp (approximately 2.2 miles) where the queue spills over and merges with Story Road to I-280/I/680 bottleneck identified above.

High demands also occur in the existing HOV lanes resulting in these lanes also functioning below an acceptable speed which, in turn, diminishes the incentive for drivers to carpool. AB 2032 (2004) set the requirement that HOV lanes must operate at least at a Level of Service (LOS) C (or LOS D with Caltrans approval), which indicates minimal delays and corresponds to a target threshold of approximately 1,650 vph per HOV lane. The 1,650 vph threshold is intended to provide HOVs with reliable travel time.

Based on this threshold, parts of the northbound and southbound HOV lanes are already at or approaching capacity in the downtown San Jose area (Caltrans 2011), as well between SR 85 and Oregon Expressway./Embarcadero Road. The San Francisco Bay Area Backbone Express Lanes Network report (Caltrans 2011) notes that because of the existing high demand for the

HOV lanes, an additional lane would need to be constructed in both directions to provide a two-lane express lane facility with sufficient capacity.

Traffic conditions are expected to worsen in the future with continued development in the region and along US 101 within the project limits. The congested areas previously noted will expand in distance, and the periods of peak congestion will extend over a longer time. Over the next 25 years, Santa Clara County is predicted to grow by over 500,000 residents and 400,000 jobs, increases of 27.5 and 45.6 percent, respectively. Over the same period, the County expects to increase the capacity of the roadway system by 5 to 6 percent.

Traffic on US 101 is also projected to increase in the form of both regional trips and local trips to and from locations on the US 101 corridor. The ability to accommodate traffic growth will be constrained by the existing capacity of the freeway. The US 101 corridor is bordered by residential, commercial and industrial development throughout most of the project limits. The adjoining land uses limit the potential to expand US 101 to meet existing or future demand without resulting in substantial property acquisitions and residential and business relocations.

Growth in travel demand on US 101 is expected to cause morning and afternoon peak traffic conditions to spread into longer periods of time when unacceptable delays persist. Congestion will increase in the mixed-flow lanes, and the HOV lanes will experience delays and no longer provide the travel time benefits intended for the facility. Traffic demand for the northbound HOV lane is expected to increase to about 2,000 vph in 2035 (Caltrans 2011). The resulting delays can reasonably be expected to diminish the public's incentive to carpool or use public transit in the US 101 HOV lanes.

The project limits encompass the majority of the urbanized length of US 101 within Santa Clara County, including the locations described where congestion currently occurs and the need for additional capacity or operational improvement exists. South of the US 101/SR 85 interchange in the City of Morgan Hill, the dual express lanes merge into the existing freeway in the southbound direction just north of the Cochrane Road interchange. In the northbound direction, a single express lane opens just north of East Dunne Avenue which allows motorists to enter the facility, which then transitions to a dual limited access express lane just north of the Cochrane Road interchange. The southern project limits near Cochrane Road were therefore selected to accommodate installation of signage south of the limits of construction of the express lanes. At the north end of the project within Santa Clara County, US 101 is physically constrained by land use development on both sides, and additional pavement needed to extend the express lanes farther to the north cannot be accommodated without significant additional right-of-way, environmental, and construction costs. The northern limits of construction would be just south of the Oregon Expressway/Embarcadero Road interchange. To allow flexibility for placement of signage, the limits of the project were set just north of the Oregon Expressway/Embarcadero Road interchange.

At over 36 miles long, the facility by itself will have more than sufficient length to provide motorist options for time savings. The project includes sufficient area to address all needed project improvements and their potential environmental impacts.

Any future extension of express lanes into San Mateo County is being evaluated separately by VTA and San Mateo County Transportation Authority. These discussions will continue through

all phases of the project to coordinate the express lane network implementation. The US 101 Express Lanes Project can be implemented and operated as an independent project in its currently defined limits regardless of whether express lanes are implemented in San Mateo County.

## **4 TRAFFIC ENGINEERING ASSESSMENT**

The scope and magnitude of traffic engineering work (traffic forecasting, modeling, analysis and evaluation) to be performed during the Project Approval and Environmental Document (PA/ED) phase have been documented in the Traffic Operations Methodology Memorandum that was prepared for this project and was reviewed and approved by Caltrans on October 14, 2011. A summary of this methodology memorandum is provided below:

### **4.1 Traffic Reports**

The scope of work for the PA/ED Phase includes calibrating the traffic model to replicate the existing conditions and preparing an existing conditions report, developing the travel demand numbers and preparing a traffic forecast report, and conducting traffic operational analysis for both build and no-build alternatives and preparing a traffic operational analysis report.

### **4.2 Analysis Tools**

The operational analysis will be conducted using VISSIM microsimulation. VISSIM is a microscopic simulation model capable of analyzing the vehicle to vehicle interaction along the freeway mainline, HOV facilities, and ramps. Prior to development of future year VISSIM models, existing conditions VISSIM models will be developed for both AM and PM peak periods and calibrated to replicate observed conditions. These calibrated models will then be modified to match the forecasted 2015 and 2035 traffic demands, assumed baseline roadway improvements, and the alternative scenarios.

### **4.3 Data Sources**

The Project Development Team will utilize traffic-related data and information relevant to the study area that is available from existing sources to develop the existing conditions traffic operational model. These existing sources include, but are not limited to:

- Caltrans Census count database,
- Recent VTA studies (CMP, Ramp Metering, etc.),
- Caltrans congestion monitoring activities,
- PeMs,
- Caltrans Tachograph Runs,
- HOV Lane Report, and
- Aerial Photographs.

To supplement these existing sources, peak period mainline manual counts will be conducted at locations near existing bottlenecks where data from other sources is not available. The team will also conduct field observations during both the AM and PM peak periods to verify geometries,

queuing and congestion patterns. All data compiled or collected will be reviewed for reasonableness. Understanding of congestion patterns will be used to adjust traffic count data (flow volumes) to create a traffic demand volume dataset for the analysis area.

#### **4.4 Analysis Periods**

The analysis will include the typical weekday A.M. and P.M. peak periods which are defined as 6:00 to 10:00 AM and 3:00 to 7:00 PM, respectively. Although the HOV lane restrictions are currently enforced between 5:00 and 9:00 AM, the 6:00 to 10:00 AM analysis period was selected because it better captures when congestion occurs within the corridor. No congestion occurs between 5:00 and 6:00 AM, and mainline traffic volumes for northbound US 101 are typically 25-40%, and can be up to 70% in some instances, lower than those observed during the peak hour suggesting that significant additional capacity is available during this hour. Analyzing the period of congestion can provide better insight into the potential impacts of the express lanes.

The proposed PM analysis is also intended to capture the period of congestion, but is also consistent with the current hours of operation for the HOV lane.

#### **4.5 Analysis Years**

To support the project approval and environmental document process, this analysis will be conducted for the following years; Existing Condition, Opening year (2015) and Design Horizon year (2035).

#### **4.6 Analysis Limits**

The analysis area encompasses the segment of US 101 from the Santa Clara/San Mateo County Line north of the Oregon Expressway/Embarcadero Road interchange to just south of the Tennant Avenue Interchange. The simulation model network will include all on- and off-ramps within these limits.

#### **4.7 Performance Measures**

The VISSIM model will be used to evaluate benefits and impacts of each alternative. Since VISSIM is based on random seed assignment, each scenario will be run six (6) times and the final results will be based on an average of those runs. The measures to be used in this study are summarized in the table below.

**Table 1 Traffic Performance Measures**

<b>Performance Measure</b>	<b>Description</b>
Congestion & Queue Characteristics	Assessment of freeway and ramp congestion patterns, including location of bottlenecks, duration and severity of queues.
Freeway Network Vehicles Miles of Travel.	Total vehicle miles of travel along study freeway network.

Freeway Network Vehicle Hours of Travel	Total number of hours in delay along study freeway network.
Total Freeway Network Delay	Total vehicle-hours and person-hours of delay, relative to travel at free flow speed, along the freeway network.
Level of Service	Based on Density (vehicles per mile per lane) along both HOV/HOT and mixed flow lanes.
Vehicle and Person Throughput	Total number of vehicles and persons passing through selected points on the freeway and ramps.
Freeway Segment Travel Times (including travel time savings in express lanes)	Both in HOV/HOT and mixed flow lanes.
Average Freeway Speeds	Both in HOV/HOT and mixed flow lanes.
Weaving Analysis for Ingress & Egress	Assessment of weaving in and out of the express lanes at each access points

The Project Development Team will conduct an internal reasonableness review of the results prior to presenting them to Caltrans. The results will be formally documented as part of the Traffic Operation Analysis Report (TOAR).

## 5 DEFICIENCIES

### 5.1 Traffic

The existing traffic conditions along US 101 in Santa Clara County were evaluated and documented by DKS Associates in the “Existing conditions and Model Calibration Report”. This existing conditions report was submitted to Caltrans for review on September 21, 2011 in support of the on-going traffic analysis task for the SR 85 Express Lanes Project (EA-04-4A7900). During the peak periods (6 a.m. to 9 a.m. and 3 p.m. to 6 p.m.), the existing freeway cannot accommodate all of the traffic demand in the corridor. As summarized in the report by DKS Associates, “Bottlenecks” occur in the mixed-flow lanes at the following freeway locations:

#### AM Peak Period - Northbound Direction

- Segment between the Capitol Expressway on-ramp and the Tully Road off-ramp (secondary bottleneck)
- Segment between the Tully Road loop on-ramp and the Tully Road diagonal on-ramp
- Segment between the McKee Road on-ramp and the Old Oakland Road off-ramp
- Segment between the Old Oakland Road on-ramp and the northbound Interstate 880 (I-880) off-ramp
- Segment between the Trimble Road on-ramp and the Montague Expressway off-ramp
- Segment between the Shoreline Boulevard on-ramp and the northbound Rengstorff Avenue off-ramp

#### AM Peak Period - Southbound Direction

- Segment between the University Avenue on-ramp and the Oregon Expressway/Embarcadero Road off-ramp
- Segment between the Oregon Expressway/Embarcadero Road on-ramp and the San Antonio Road off-ramp

#### PM Peak Period - Northbound Direction

- Segment between the Shoreline Boulevard on-ramp and the northbound Rengstorff Avenue off-ramp (secondary bottleneck)
- Segment between the San Antonio Road on-ramp and the Oregon Expressway/Embarcadero Road off-ramp
- Segment between the Oregon Expressway/Embarcadero Road on-ramp and the University Avenue off-ramp

#### PM Peak Period - Southbound Direction

- Segment between the Oregon Expressway/Embarcadero Road on-ramp and the San Antonio Road off-ramp
- Segment between the Rengstorff Avenue on-ramp and the Old Middlefield Way on-ramp
- Segment between the De La Cruz Boulevard on-ramp and the State Route (SR) 87 off-ramp
- Segment between the Old Oakland Road on-ramp and the McKee Road off-ramp
- Segment at the lane drop downstream of the Story road on-ramp and the I-280/I-680 connector on-ramp
- Segment between the Tully Road on-ramp and the Capitol Expressway off-ramp

A thorough traffic analysis including the preparation of a Traffic Operational Analysis Report (TOAR) will be undertaken during the PA/ED phase.

## **5.2 Accident Analysis**

Accident data for the US 101 corridor within the project limits was provided by Caltrans Traffic Accident Surveillance and Analysis System – Traffic System Network (TASAS-TSN) for the 3-year period from June 1, 2007 through May 31, 2010. The following table summarizes the accident data.



**Table 2 - 3-Year Accident Data and Accident Rates (June 1, 2007 to May 31, 2010)**

Location	Number of Accidents	Accident Rate					
		Actual (per million vehicle miles)			Average (per million vehicle miles)		
		Total*	Fatal	F&I	Total*	Fatal	F&I
US 101 – PM 15.10-23.10	388	.36	.003	.11	1.08	.011	.35
US 101 – PM 23.10-28.60	255	.36	.004	.12	.93	.01	.30
US 101 – PM 28.60-47.89	3730	1.05	.004	.28	.97	.01	.30
US 101 – PM 47.89-51.99	826	.91	.001	.24	1.10	.011	.34
*Total accidents include fatalities plus injuries and those accidents involving property damage only. Key: F = Fatal; I = Injury							

Analysis of the TASAS Accident Summary shows 52.9% of the accidents occurred in the northbound direction and 47.1% in the southbound direction on US 101 within the project area. There were 20 fatal accidents and 1,406 injuries reported within the project limits during the three years duration indicated.

According to Caltrans traffic accident data, 62% of the recorded accidents between June 1, 2007 and May 31, 2010, were rear-end collisions, which are typically associated with congested conditions.

In the northbound direction, the breakdown of the recorded accidents is as follows: 15.8% sideswipes, 64.16% rear-ends, 3.02% broadside, 13.85% hit objects, 2.02% overturns, and the remaining 1.15% as head-on, auto-pedestrian, and not stated. In the southbound direction, the breakdown of the recorded accidents is as follows: 19.12% sideswipes, 60.59% rear-ends, 3.47% broadside, 12.21% hit objects, 2.69% overturns, and the remaining 1.92% as head-on, auto-pedestrian, and not stated. From the total reported accidents in both directions, 11.21% were caused by improper turning, 5.21% were alcohol related, 1.6% following too close, 9.35% were caused by other violations and the other 60.65% were caused by speeding.

A more detailed analysis of the accident data along the corridor revealed that these accidents are concentrated around the bottleneck and queue locations. Two accident concentrations locations were identified as follows:

- A concentration of accidents occurs around the Moffett Field to San Antonio Road segment, which is in the same location of the existing bottleneck. This segment accounts for 13.2% of the total accidents in the corridor. The majority of these accidents (70.0%) were rear-end collisions at this location confirming the correlation between the accident data and the congested conditions.
- A concentration of accidents occurs around the Capitol Expressway to Story Road segment (14.5% of the total number of accidents). The majority of these accidents

(70.0%) were rear-end collisions at this location further confirming the correlation between the accident data and the congested conditions.

Furthermore, analysis of Fatality and Injury accidents revealed that concentrations of such accidents match the location of the total accidents concentrations described above.

## **6 CORRIDOR AND SYSTEM COORDINATION**

### **6.1 Identify Systems**

Although US 101 is not part of the Interstate System, it is a principal arterial and part of the National Highway System (NHS), is a Strategic Highway Network (STRAHNET) route, and is part of the State Highway Extra Legal Load (SHELL) route system, which permits transport of loads exceeding limits of length, height, or weight as stated in the California Vehicle Code, Section 15. Caltrans' Interregional Transportation Plan (ITP) classifies US 101 as a "High Emphasis" and "Focus Route," making this route of highest priority for completion to minimum facility standards in the 20-year period. Focus routes serve as a system of high-volume primary arteries to which other state highway routes can connect for purposes of longer interregional trips and access into statewide gateways.

US 101 is a National Truck Network route and a Surface Transportation Assistance Act (STAA) route, and functions as a principal truck route between the Central Valley, Central Coast, and San Francisco Bay Areas. There are no truck advisories on US 101 within the project limits.

### **6.2 State Planning**

In 2002, Caltrans District 4 prepared a Preliminary Draft Transportation Corridor Concept Report (TCCR) Corridor #14, which covers U.S. 101 South (from Santa Clara SR 85 to San Benito SR 156). This TCCR listed a number of projects that include freeway widening to accommodate additional mixed flow and HOV lanes and interchange modifications. Several of the identified projects in the TCCR have already been built or are currently under construction. The following list represents the outstanding projects that are still in planning and design stages or have not been advanced beyond the TCCR.

- US 101/Blossom Hill Ave Interchange Modification
- US 101/Hellyer Ave Interchange Modification
- SR 87/US 101 to Trimble Rd Ramp Connection + Trimble Interchange Improvements
- US 101/4th Street/Zanker Rd Overcrossing and Ramp Modifications
- US 101/Trimble Rd/De La Cruz Blvd/Central Expressway Interchange Improvements
- Auxiliary Lanes from SR 87 to Montague Expressway
- US 101/Montague Expressway/San Tomas Expressway/Mission College Blvd Interchange Improvements
- Auxiliary Lanes from Tully Rd to Bernal Rd
- Auxiliary Lanes from SR 87 to Great America Pkwy

After passage of Proposition 1B in 2006, Caltrans has implemented the Corridor System Management Plan (CSMP) process statewide for all corridors with projects funded by the Corridor Mobility Improvement Account (CMIA) program. The California Transportation Commission (CTC) requires that all corridors with a CMIA-funded project have a CSMP that is developed with regional and local partners. The CSMP recommends how the congestion-reduction gains from the CMIA projects will be maintained with supporting system management strategies. CTC has also provided guidance in the 2008 RTP Guidelines that state that CSMPs are an important input to the development of the Regional Transportation Plans (RTP 2035).

In December 2010, Caltrans completed the CSMP for US 101 South corridor which revisited the planned future improvements along the corridor. The CSMP represented a cooperative commitment by Caltrans and local agencies to develop a corridor management vision for the US 101 South corridor which includes the proposed US 101 Express Lanes project. The CSMP also adopted the following list of projects that were included in the 2009 Santa Clara Valley Transportation Plan 2035 (VTP 2035).

- H1: SR 85 Express Lanes from US 101 in Mountain View to US 101 in South San Jose – Reference Number 230674 (currently undergoing environmental review)
- H9: SR 237 Express Lanes from Mathilda Avenue to SR 85 – Reference Number 230677
- H23: US 101/Montague Expressway/San Tomas Expressway/Mission College Boulevard Interchange improvements
- H24: US 101/Trimble Road/De La Cruz Boulevard/Central Expressway Interchange improvements
- H25: US 101/Blossom Hill Road Interchange improvements
- H26: US 101/Mabury Road/Taylor Street Interchange improvements
- H27: US 101 Southbound Auxiliary Lane: Great America Parkway to Lawrence Expressway
- H28: US 101/Old Oakland Road Interchange improvements
- H29: US 101 Southbound widening: Story Road to Yerba Buena Road, adds a lane on southbound US 101 between south of Story Rd. to Yerba Buena Rd. The project also includes the modification of the US 101/Tully Rd. interchange to a partial cloverleaf
- H30: US 101/Capitol Expressway I/C improvements (includes new NB on-ramp from Yerba Buena Road)
- H32: US 101 Southbound Auxiliary Lane widening: I-880 to McKee
- H33: Construct auxiliary lanes on US 101 in Mountain View and Palo Alto from SR 85 to Embarcadero Road – MTC RTP Reference Number 230531 (currently under construction)
- H44: Improve US 101 southbound ramps at 10th Street – Reference Number 230347
- H47: US 101/Hellyer Avenue Interchange improvements

- H48: US 101/Zanker Road/Skyport Drive/Fourth Street Interchange improvements
- H49: US 101 Southbound Auxiliary Lane improvement: Ellis Street to SR 237
- H50: Widen southbound US 101 off-ramp at Cochrane Road from two to three lanes – Reference Number 230350
- H55: US 101 Southbound Improvements: San Antonio Road to Charleston Road/Rengstorff Avenue
- H65: SR 237/Mathilda Avenue and US 101/Mathilda Avenue Interchange Improvements
- H67: SR 237 Westbound to Northbound US 101 Ramp Improvements

This list updated the list of projects identified in the TCCR by adopting, adding, or deleting some of the projects from the previous list. The CSMP studied the mobility and performance of US 101 between the San Mateo/San Francisco County border to the US 101/SR 85 South Interchange in Santa Clara County. The plan recommended corridor management strategies such as Intelligent Transportation Systems (ITS), ramp metering, auxiliary lanes, and construction of HOV lanes that can be converted to express lanes. The CSMP emphasized the importance of implementing a Smart Corridor Plan to redirect traffic during emergencies. In accordance with the CSMP, Caltrans and VTA are in the process of preparing environmental clearance and contract documents for the Freeway Performance Initiative – Traffic Operations Systems project. This project implements ramp metering at several ramps within the project corridor.

### **6.3 Regional Planning**

The project is listed in the Metropolitan Transportation Commission's (MTC's) Regional Transportation Plan (RTP) 2035 as Reference Number 230662, "U.S. 101 in Santa Clara County from San Mateo/Santa Clara County line to Cochrane Road - convert HOV lanes to express lanes". The project is also included in the Transportation Improvement Program (TIP) - ID Number SCL110002.

US 101 in Santa Clara County is part of the MTC HOV Master Plan and the Bay Area Express Lanes network as published in the Bay Area High-Occupancy/Toll (HOT) Network Study Final Report. The project is also included in MTC's Regional HOT Lanes Network Feasibility Study that was initially published in September 2007 and its subsequent updates in June 2008, and December 2008. Caltrans participated and was a stakeholder in developing this study.

A white paper was prepared that assessed the potential for providing continuous access along Bay Area Express Lanes. This paper provided a summary of experiences from other express lanes projects nationally, presented issues facing a continuous access approach, identified potential resolutions and made recommendations for a potential demonstration of this design and operational approach for the Bay Area. Recommendations from this white paper could be summarized as follows:

- All vehicles will need to carry transponders and self-declaration through switchable transponders
- Redundant systems to facilitate higher reliability for toll enforcement are needed

- The frequency in locating such devices to track express lane users will need to increase for continuous access
- Augmenting CHP presence through beacons at toll reader sites and in-vehicle account verification will be needed.
- Through these adoptions of technology, the role of CHP enforcement would change and be focused primarily on occupancy verification either from stationary or mobile monitoring. To the extent that self-declaration is accepted by the customers and business practices address toll evaders, the presence and exposure to CHP officers can be minimized.

As the need to undertake this option involves more development in the technology area that is currently still in development, continuous access was not considered as a design variation in this PSR (PDS). The proposed build alternative (buffer separated facility) does not include construction of a concrete barrier between the express lane and the mixed-flow lanes. As such, a future conversion of the US 101 express lane from a limited access to a continuous access facility with minimal restriping work and addition of the toll readers and enforcement technology throughout the corridor as proposed in the BATA white paper will still be possible.

#### **6.4 Local Planning**

The project is listed in the 2009 Santa Clara Valley Transportation Plan 2035 (VTP 2035) as the following Reference Numbers:

- VTP ID H3 – US 101 Express Lanes: San Mateo county line to SR 85 in Mountain View (Conversion)
- VTP ID H4 - US 101 Express Lanes: SR 85 (San Jose) to Cochrane Road. (Conversion)
- VTP ID H5 - US 101 Express Lanes: SR 85 in Mountain View to SR 85 in San Jose (Conversion)

The proposed project does not include construction of new connections or closure of existing connections with the local system. The local agencies and elected officials are informed through the various Advisory and Standing Committees and the VTA Board meetings. In addition, they will also be informed through stakeholder and community outreach meetings during the development of this project. An open house public information meeting to present this project will be conducted during the PA/ED phase.

#### **6.5 Programmed and Planned Projects within the Project Limits**

The following projects have been identified within or adjacent to the limits of the US 101 Express Lanes Project in the MTC's RTP 2035:

Currently in Feasibility Study/Project Initiation Document Phase

- Route 237 Express Lanes from Mathilda Avenue to SR 85 – Reference Number 230677
- Improve US 101 southbound Trimble Road/De La Cruz Boulevard/Central Expressway interchange – Reference Number 21722

- Reconfigure local roadway and interchange at US 101/Blossom Hill Road in San Jose – Reference Number 21785
- Widen westbound Route 237 on-ramp from Route 237 to northbound US 101 to 2 lanes and add auxiliary lane on northbound US 101 from the Route 237 on-ramp to the Ellis Street interchange – Reference Number 22145
- Extend Mary Avenue north across Route 237 (includes reconfiguring the US 101/Mathilda Avenue interchange) – Reference Number 22153
- Construct US 101/Mabury Road/Taylor Road interchange – Reference Number 22965
- Construct a new interchange at US 101 and Montague Expressway – Reference Number 230262
- Improve US 101 southbound ramps at 10<sup>th</sup> Street – Reference Number 230347
- Widen southbound US 101 off-ramp at Cochrane Road from 2 to 3 lanes – Reference Number 230350
- Implement local roadway improvements to Old Oakland Road over US 101 – Reference Number 230492

Currently in PA/ED Phase

- SR 85 Express Lanes from US 101 in Mountain View to US 101 in South San Jose - Reference Number 230674

Currently in PS&E Phase

- Improve US 101/Capitol Expressway interchange (includes new northbound on-ramp from Yerba Buena Road) – Reference Number 22142

Currently in Construction Phase

- Construct a lane on southbound US 101 from south of Story road to Yerba Buena Road, and modify the US 101/Tully Road interchange to a partial cloverleaf – Reference Number 22134
- Construct auxiliary lanes on US 101 in Mountain View and Palo Alto from Route 85 to Embarcadero Road – Reference Number 230531

## 6.6 Transit Planning

Currently VTA operates the following bus service, including express bus services between Monterey, Salinas, and San Jose, that run on segments of US 101 within the project limits:

- Line 104 Penitencia Creek Transit Center to Palo Alto
- Line 120 Fremont BART to Lockheed Martin Transit Center/Moffett Industrial Park-Shoreline
- 121 Gilroy Transit Center to Lockheed Martin Transit Center/Moffett Industrial Park
- 122 South San Jose to Lockheed Martin Transit Center/Moffett Industrial Park
- 168 Gilroy Transit Center to San Jose Diridon Transit Center

- 972 Line 55 Monterey - San Jose Express Bus
- 971 Dumbarton Express Bus Route

Caltrain runs train service from San Francisco to Gilroy. In some segments the Caltrain tracks, Caltrain runs parallel to US 101. The tracks do not cross US 101 within the project limits.

At the southern end of the project limits, VTA's VTP 2040 identifies U.S. 101 as having proposed double HOV lanes in both directions in the future between Cochrane Road and SR 25.

The South County Circulation Study published by VTA in 2008 also recommended operational improvements to VTA's local bus service, express bus service, and bus rapid transit service. It also recommended an increase in Caltrain's service between Gilroy and San Jose.

## **7 ALTERNATIVES**

### **7.1 Descriptions**

There are two project alternatives under consideration, a No Build Alternative and a Build Alternative with two design variations. Further details of each alternative and variations are described in the following sections. This document identifies and describes a range of geometric design options to be further evaluated during the PA/ED phase. This document does not include a 'fatal-flaw' analysis and therefore does not act as a conceptual approval of alternatives, design options or non-standard design features.

#### **A) The No Build Alternative**

The No-Build Alternative proposes no modifications to the current US 101 corridor including the continuous access HOV lane other than routine maintenance and rehabilitation of the facility and any currently planned and programmed projects within the area. This alternative would result in continued deterioration of traffic conditions with the additional forecasted traffic demand in the future. This alternative does not meet the need and purpose of the proposed project. Rather, it provides a basis for the analysis and evaluation of the Build Alternative.

#### **B) Build Alternative**

The Build Alternative consists of converting the existing HOV lane along both northbound and southbound US 101 into an express lane and widening the freeway to add a second express lane for the majority of the corridor. The project also proposes to build new express lanes in the northbound direction between East Dunne Avenue and the existing HOV lane at Cochrane Road, and in the southbound direction between Burnett Avenue and Cochrane Road. The express lanes would allow HOVs to continue to use the lanes without cost and eligible single-occupant vehicles (SOVs) to pay a toll.

The improvements will result in a two-lane limited access express lane facility in both directions extending from just south of the Cochrane Road interchange in Morgan Hill to just south of the Oregon Expressway/Embarcadero Road interchange in Palo Alto in the northbound direction, and from just south of the Oregon Expressway/Embarcadero Road interchange to just South of the Burnett Avenue overcrossing in the Southbound direction.

The addition of the second express lane will involve a combination of inside and outside widening. Majority of the inside widening will occur within the US 101 segments south of the SR 85/US 101 Interchange in South Santa Clara County where a wide unpaved median exists. The project proposes to widen and pave the median in order to accommodate the additional lanes. The outside widening will occur in the remaining of the corridor to accommodate the additional lanes.

The express lanes facility would be separated from the adjacent mixed-flow lanes by a wide striped buffer. The buffer zone, delineated with solid stripes, will have designated openings to provide access into and out of the express lanes facility. A schematic showing the proposed striping detail of the typical ingress and egress locations for a two-lane Express Lane Facility is also shown in Attachment C.

### ***Design Variations***

Two design variations are identified for the Build Alternative. Design Variation 1 proposes a Rapid Delivery Approach and requires justification and approval of several non-standard features. This variation implements the dual express lane system with some non-standard cross sectional elements that minimize the need for new right-of-way, outside widening, and structure reconstruction. Design Variation 1 maximizes the use of the existing pavement cross section with a combination of inside and outside widening to create the additional pavement needed to accommodate the second express lane.

Design Variation 2 would be a facility in substantial compliance with the minimum design standards. This variation relies substantially on outside widening of the highway cross-section, including widening of existing structures, replacing of overcrossings, right-of-way acquisition, and relocation of residences, businesses, and frontage roads that are adjacent to the existing right-of-way line throughout the corridor in order to provide standard width of cross-sectional elements. Attachment D shows typical Cross Sections for the Design Variations 1 and 2. Preliminary Cost Estimates for each design variation are shown in Attachment E and were used to develop a range of cost for the future project.

The two design variations provide a range of cost and impacts for the PA-ED phase. The PA-ED studies will define a build alternative that satisfies the project purpose and need, is cost effective, and will avoid or minimize environmental and right of way impacts while trying to maintain design standards. Approval of design exceptions associated with these design variations will be pursued during the PA-ED phase through the preparation of Design Exception Fact Sheets. The project will comply with the TOPD 11-02 for managed lane design.

The future plan will include implementation of improvements, as practical, in the corridor to restore the facility to standard geometry. Per the guidelines established in California Assembly Bill AB 574, Sec 2, 149.6 (e) (3), specific to VTA's Express Lanes Program, the net revenue generated from the express lanes after payment of all the expenses related to maintenance, operation, construction and administration of the facility, will be allocated according to an expenditure plan adopted by VTA.



### ***US 101/SR 85 Direct Connectors***

At the south end of the project in southern San Jose, both the northbound and southbound HOV direct connectors from SR 85 to US 101 will be converted to express lane connectors by the SR 85 Express Lanes Project, allowing SOVs with valid FasTrak devices to use the direct connectors.

At the north end of the project in Mountain View, the US 101 Express Lanes Project will convert the existing HOV connectors to express lane connectors and will extend the buffer striping onto SR 85 to connect to the buffer constructed by the SR 85 Express Lanes Project (EA #04-4A7900). The combination of SR 85 and US 101 Express Lanes projects will provide a complete express lane system on both freeways that includes the direct connectors.

### ***Structures***

Widening of structures and retaining walls are required to accommodate the proposed improvements. The list of existing structures is shown in Table 3 below. The scope of work at each of these structures will be determined during the PA/ED phase based on the geometric approval drawings (GAD).

**Table 3 - List of Structures**

Bridge No.	Bridge Name	No. of Spans
37-334	E Dunne Ave OC	2
37-335	E Main Ave OC	2
37-341	Cochrane Rd OC	2
37-342	Burnett Ave OC	2
37-349	Coyote Creek	3L/3R
37-344	Coyote Creek Golf Drive UC	2L/2R
37-404	Utility Facilities UC	1L/1R
37-546	Bailey Ave OC	2
37-339	Metcalf Rd OC	2
37-346	Coyote Creek UC	3L/3R
37-347	Bernal Rd UC	2L/2R
37-348	JCT SR 85/101	4L/4R
37-108	Coyote Rd UC	3L/3R
37-102	Coyote Creek	4L/4R
37-217	Hellyer Ave OC	3
37-409	Yerba Buena Rd UC	1L/1R
37-218	Capitol Expwy OC	4
37-95	Tully Rd OC	4
37-142	Story Rd OC	4
37-285	280-680/101	3
37-352	North Connector	55
37-353	South Connector	55
37-222	San Antonio St OC	2

Bridge No.	Bridge Name	No. of Spans
37-48	Santa Clara St OC	2
37-123	Julian/McKee OC	2
37-97	Silver Creek	3
37-122	East San Jose UP	2
37-39	Coyote Creek	6
37-121	Taylor St OC	2
37-113	Berryessa Rd OC	2
37-114	Oakland Rd OC	2
37-115	North San Jose UP	2
37-118	10th St OC	4
37-119	Jct 880/101 SEP	4
37-119	N 1st St UC	4
37-490	Brokaw Rd UC	2
37-183	Jct 87/101 SEP	3
37-037	Guadalupe River	4
37-180	De La Cruz Blvd OC	4
37-36	Agnew UP	2
37.17	Lafayette St OC	4
37-166	San Tomas Expwy OC	4
37-41	San Tomas Aquino Creek	3
37-390	Bowers Ave OC	2
37-399	Calabazas Creek	3
37-152	Lawrence Expwy	2
37-395	Ahwanee Ave PED OC	4
37-168	Fair Oaks Ave OC	4
37-663	South Borregas Ave Ped OC	12
37-177	Mathilda Ave OC	4
37-178	Jct SR 237/101 BR	4
37-72	Ellis St OH	4
37-105	Moffett Blvd OC	2
37-34	Stevens Creek	2
37-153	Shoreline Blvd OC	2
37-143	Rengstorff Ave OC	4
37-146	San Antonio Rd OC	4
37-174	Adobe Creek	1
37-40	Matadero Creek	2
37-149	Oregon Expressway OC	4
37-323	Oregon Expressway Ped OC	16
37-150	Embarcadero Rd OC	4

### ***Toll Operation***

Conversion of the US 101 HOV lanes to express lanes is intended to open these lanes to SOVs with current and active FasTrak accounts and transponders. The express lanes will include multiple intermediate access points to provide equal opportunity for prospective users, including carpoolers, to benefit from free flow traffic on the facility. Back office operations will be tightly integrated with lane operations, enforcement, incident management, and other subsystems to maintain the free flow conditions.

### ***Lane Operation***

Overhead static signs will be installed in advance of all express lane ingress locations to advise qualified HOV and SOV users as they approach an ingress point. An overhead dynamic message sign (DMS) will be located just prior to the ingress to the express lane and will display the current tolls to travel to downstream destinations. The DMS will display the price to the downstream destination served by the next exit from the express lanes facility as well as the other downstream segments. A policy inherent in the design is the toll rate displayed at the time the user enters the express lanes facility will be “locked” for that user for travel to any destination that is either explicit or implicit within the displayed destinations. The prices displayed are continuously updated (e.g., every 3 to 6 minutes) to reflect changing speed and traffic density measured at a maximum of one mile intervals along the express lanes and validated by travel time data that is collected from the mixed-flow lanes.

After entering the express lanes facility, all users will encounter a tolling zone consisting of a single cantilever structure. This structure will support an antenna to enable communication with vehicle-mounted transponders, and a transaction indicator beacon to convey user type (e.g., HOV, SOV and violator, subject to the configured System). The buffer installed between the express lane(s) and mixed-flow lanes will legally restrain users from either entering or exiting the facility anywhere other than designated locations identified by pavement striping, markings and signs that comply with Federal and State standards.

Static overhead and barrier mounted signs will provide advance notice of an express lanes exit, including a list of specific interchanges immediately downstream of the signed exit. The Express Lanes exit will be situated to allow a user adequate distance to change lanes prior to exiting the freeway to a particular interchange.

### ***Customer Service and Account Management***

Prospective SOV users can obtain a transponder through the BATA Regional Customer Service Center (RCSC) or a partnering retail outlet or toll agency to complete an application to receive a transponder. FasTrak accounts opened to use the express lanes facilities will be maintained and managed at the RCSC by BATA’s Service Provider.

### ***SOV Transaction Processing***

To use the express lanes as an SOV, the user will need to mount a FasTrak transponder to the vehicle windshield. Upon entering the express lanes and then after passing underneath the tolling antennas, transaction records will be sent in near real time from each toll zone controller to the Central Processing System (CPS) for processing and configuring trips in a specified format for communicating with the RCSC.

***HOV Transaction Processing***

All existing eligible vehicles to travel in the carpool lane will continue to be exempt from paying a toll on the US 101 express lanes.

***Violation Processing***

Assuming HOV vehicles will not be required to register in order to utilize the express lanes facility and no license plate recognition is incorporated into the final system integrator design, when a CHP officer pulls an SOV off for potential violation of the express lanes, and the subject vehicle provides the officer with a FasTrak tag, he/she will check the status of the subject tag, confirms when it was last read by a reader/antenna, and if the record shows that the subject tag account did not get charged by passing under the antenna reader, the officer will issue the driver a citation for toll evasion. If a vehicle license plate recognition technology is implemented as part of the project, a violation processing system similar to that implemented on the Bay Bridge can be implemented where a vehicle in the express lane that did not get its FasTrak account charged, can be issued a citation based on the driver account linked to the vehicle license plate read on this account.

***Enforcement***

Adequate enforcement of the express lanes system is a fundamental element for the system's success and needs to be considered during all phases of development. Work with the Golden Gate CHP Division as well as the Gilroy, San Jose and Redwood City Area offices has provided guidance that includes:

- Observation and enforcement zones along the US 101 corridor will be developed and coordinated with Caltrans and the CHP during the PA/ED phase.
- While CHP prefers fully automated enforcement that will only be possible in the long term, near-term plans will also include visual enforcement by on-site officers. As such, where it is physically feasible, CHP observation points would be created downstream of the access points (toll zone) and at intermediate locations between access points (toll zones). Enforcement details will be worked out with CHP and Caltrans during the PA/ED phase of the project. Typical observation points would include provision of offset barrier to protect the CHP officer and vehicle from oncoming traffic and would be positioned approximately 150 feet downstream of the toll gantry. A beacon light mounted on the gantry or the barrier will identify vehicles without a FasTrak transponder and therefore would flag them as potential violators. The CHP officer then will visually verify the occupancy in the suspected vehicle and determine whether it is a SOV in violation or a legitimate HOV. The officer will then pursue the violator or, if two officers operating in tandem, will radio the second officer downstream to pursue them, and direct them to a safe stopping place. The violating SOVs will be pulled over to the right shoulder and cited for the appropriate violation of the vehicle code.

Where possible, these enforcement zones will be located on tangent sections of the freeway and away from ingress and egress locations. Adequate sight distance will be provided. The location of these conceptual enforcement zones depend on the access zones locations which will be finalized upon completion of the traffic operational analysis that will be prepared during the PA/ED phase. The geometric design of these enforcement zones and any associated design exceptions will also be developed during the PA/ED and discussed with Caltrans and the CHP.

Enforcement of the express lanes facilities is critical to the operational performance of these lanes. Until technology advancement allows for fully automated enforcement and occupancy verification, it is proposed that the US 101 express lanes facility is enforced manually by visual observation of the occupancy level and the beacon lights on the gantry.

In addition, a Portable Reader - a handheld device designed to read a transponder ID number from SOVs and for verification by patrolling CHP officers will be considered for effective express lane enforcement. The Portable Reader enables a CHP officer to determine if there is a match with the stored tag status list. Subject to Title 21 limitations, the portable reader can also allow CHP officers to determine the date, time, and location code of the last time the transponder was read at a tolling zone.

### ***Ownership, Maintenance and Operation Agreements***

The overall electronic toll system (ETS) for the express lanes facility will be constructed, operated and maintained by VTA. An encroachment permit will be obtained during the PA/ED phase for the express lanes tolling system located within State Right of Way.

In addition, the following agreements will be needed to operate and maintain the express lanes facility:

- A Cooperative Agreement addressing the PA&ED, Design, and Right of Way clearance established between Caltrans and the VTA using the Cooperative Agreement Report (CAR) as the authorizing document.
- A Construction Cooperative Agreement established between VTA and Caltrans. The Construction Cooperative Agreement will be developed during the PS&E phase of the project.
- Joint Use Maintenance and Operations Agreement established between VTA and Caltrans in order to identify utility cost sharing, Freeway Service Patrol and towing operations, accident clearance, responsibilities, roles and limits of responsibilities.
- Customer Service and Toll Collection Agreement established between VTA and BATA for the customer service, toll collection, and transaction processing responsibilities and the associated cost sharing and funds transfer between BATA and VTA.
- Reimbursable services agreements established between VTA and CHP to provide express lanes enforcement.
- Tolling Agreement with FHWA

### **C) Alternatives Considered But Eliminated from Further Discussion**

Other alternatives were considered during the early stages of project development but were eliminated because they did not meet the project's purpose and need, could not be constructed, or would have unacceptable environmental impacts.

**Single Express Lane/Separate Access Points.** Converting the existing HOV lane in each direction to an express lane was considered. However, traffic forecasts predict that in less than 20 years the existing HOV lane will meet or exceed the capacity (about 1650 vph per lane). As

that occurs, speeds would decline to a level where there will be no excess capacity available in the HOV lane to the SOVs willing to pay a toll to use the express lanes. The single-lane alternative was also eliminated because it would preclude the future construction of a second express lane in the US 101 corridor. The separate ingress/egress option for a single-lane alternative would not have the same access points as a two-lane facility. Therefore, transitioning to two express lanes in the future (which is the ultimate vision for US 101 as currently proposed) would require reconstruction of all overhead sign structures, electronic toll equipment, and access zones in new locations.

**Single Express Lane/Shared Access Points.** This alternative would be similar to the Separate Access Points concept described above (convert the single HOV lane to a single express lane), but will feature designated, combined entrance and exit openings to provide access into and out of the express lane facility. It has the same future capacity constraints described for the previous separate access points alternative but also introduces more concentrated weaving movements at each access point that could negatively impact travel flow. Because this alternative would introduce additional congestion points at the weaving locations, it was dropped from further consideration.

**Add Additional Mixed Flow Lane(s).** An additional mixed flow lane, added to the freeway in each direction, would increase the capacity of the highway and improve traffic conditions, including at bottleneck locations. Pavement would be added as needed, and the freeway would be restriped to maintain the existing HOV lane adjacent to the inside median. However, adding a mixed flow lane would not relieve congestion in the HOV lane. It was therefore not considered further.

**Add Separated Express Lane and HOV Lane.** This alternative would also add a new lane in each direction. The existing HOV lane would remain as a facility for HOV users only, and the new lane would serve toll-paying drivers only during peak periods as an express lane. This type of facility would not allow as much flexibility of choice to drivers: all HOV users would be limited to a single lane, as would all express lane users. If HOV use, or express lane use, is high at any given moment, their respective lane would begin to suffer congestion and defeat the efficiency of having HOV or express lanes. Allowing HOV and express lane users to access either of two lanes and mix, allows greater flexibility of choice to the drivers and reduces the potential for congestion. These options were not considered further because they would not avoid any of the environmental impacts of the proposed project, and would not provide superior traffic operations.

## 8 RIGHT OF WAY

### 8.1 Right of Way:

Design Variations 1 and 2 have different right-of-way requirements. It is anticipated that Design Variation 1 will require limited right-of-way in the form of partial acquisitions and Temporary Construction Easements (TCE) if design exceptions are warranted, while Design Variation 2 will require significant right of way acquisition (partial and full take), temporary construction easements, and relocation of frontage roads and local streets to accommodate the proposed cross-sectional width of the facility. The preliminary order of magnitude cost

estimates for each design variation can be found in Attachment H. Right of way activities will be coordinated during the PA/ED phase.

## **8.2 Railroads:**

No work within operating railroad right of way is anticipated as part of this project. A provision will be included in the special provisions during PS&E notifying the contractor to stay out of the railroad right-of-way.

## **8.3 Utilities:**

Utility impacts are anticipated as a result of this project. Utility verifications and potholing will be conducted during the PA/ED and design phases of the project to ascertain utility locations, and to develop the utility relocation plans for the project.

# **9 STAKEHOLDER INVOLVEMENT**

VTA, in an effort to gauge public sentiment about the adoption of express lanes for SR 85 and US 101 in Santa Clara County, began a public outreach and education program in 2008. The first phase included:

- Interviews with a Polling group of approximately 750 Santa Clara County citizens using the following methods. This research included:
  - A telephone survey of 681 SR 85 and US 101 users,
  - 4 focus groups of HOV users and solo drivers who use both roadways,
  - 13 one-on-one interviews with community stakeholders,
  - An analysis of media coverage.
- VTA outreach staff participated in fifteen public events
  - VTA staff meetings with business, environmental and community groups to give presentations.

The cumulative findings, analysis and outreach indicate:

- There are no “deal-breakers” for stakeholders, business and community groups, or commuters;
- Stakeholders are supportive;
- The opportunity exists to leverage ten successful such projects in operation in the U.S.; and,
- These express lanes will attract enough users to be financially successful, but not so many that the express lanes will be too crowded

As part of the Feasibility Study, VTA also commissioned an equity study completed by San Jose State University titled “Assessing the Equity Implications of HOT Lanes”.

Community outreach efforts will continue through the PA/ED process leading to the public circulation of the environmental document. VTA will work with the project stakeholders such as local cities, Caltrans, FHWA, and other agencies during the PA/ED phase.

## 10 ENVIRONMENTAL DETERMINATION/DOCUMENT

Depending on the extent of the design variation selected and its associated project footprint, the environmental document for the proposed project will either be Initial Study/Environmental Assessment (IS/EA), Mitigated Negative Declaration/Environmental Assessment (MND/EA) with a Finding of No Significant Impact (FONSI), Environmental Impact Report/Environmental Assessment (EIR/EA), or Environmental Impact Report/Environmental Impact Study (EIR/EIS). Caltrans will be the lead agency in preparation of the joint CEQA/NEPA environmental document. Attachment F provides the Preliminary Environmental Analysis Report (PEAR). The PEAR anticipates that many resources will need limited or no analysis and can be briefly considered and addressed in an Environmental Document. Several other resources will be treated with minimal desktop or windshield analysis and internal documentation (i.e. memoranda to files) of the findings regarding project impacts on these resources. The remaining resources will require study analyses, and reports to fully characterize the impacts from the project, and will be undertaken during the PA/ED phase. The environmental document will be prepared with Caltrans as the lead agency and VTA as the implementing agency.

## 11 FUNDING

In October 2007, Governor Schwarzenegger signed AB 574 allowing VTA to operate express lanes on a permanent basis by removing the “demonstration” status and allowing issuance of bonds, backed by express lanes program revenues, to finance express lanes construction.

### 11.1 Capital Cost Estimate

**Table 4 Cost Summary (in millions)**

	<b>PA/ED</b>	<b>PS&amp;E</b>	<b>Capital Cost</b>	<b>Construction Support</b>	<b>Total</b>	<b>Funding Sources</b>
FY11-12	\$4				\$4	VTA Local Funds
FY12-13	\$2				\$2	VTA Local Funds
FY13-14		\$15 to \$31			\$15 to \$31	TBD*
FY14-15		\$16 to \$31	\$166 to \$481	\$25 to \$51	\$207 to \$563	TBD*
FY15-16			\$167 to \$482	\$25 to \$52	\$192 to \$534	TBD*
Total	\$6	\$31 to \$62	\$333 to \$963	\$50 to \$103	\$420 to \$1,134	TBD*



\* VTA continues to explore various funding options for the PS&E and Construction phases of the project. Potential future funding sources include local funding, bonding against future revenues, , TIFIA loans, federal grants, and/or regional and state programs.

### **11.2 Capital Support Estimate**

The Capital Support Estimate for the PA/ED in the 2012 STIP for this project is to be determined.

## **12 SCHEDULE**

The following is the current major milestone schedule for the PA/ED phase of the project:

**Table 5 - Project Schedule**

<b>Project Milestones</b>	<b>Delivery Date (Month/ Year)</b>
Approval of PSR-PDS/Begin PA/ED Phase	June 2012
Circulate DED	Fall 2012 to Spring 2013
PA/ED Complete	Spring 2013 to Summer 2013
PS&E Complete	Summer 2013 to Fall 2014
Award and Construction	Winter 2014 to Winter 2015

## **13 FHWA COORDINATION**

US 101 is part of the National Highway System and this project is considered to be delegated under the current FHWA/Caltrans Stewardship Agreements executed on September 4, 2007. FHWA involvement is expected during the development process of the electronic toll system integrator request for proposals.

## **14 PROJECT CONTACTS**

The following people should be contacted if any questions should arise about this report:

<u>Name</u>	<u>Function</u>	<u>Phone Number</u>
Nick Saleh	Caltrans Project Manager	(510) 286-6355
Lam Trinh	VTa Project Manager	(408) 321-5983

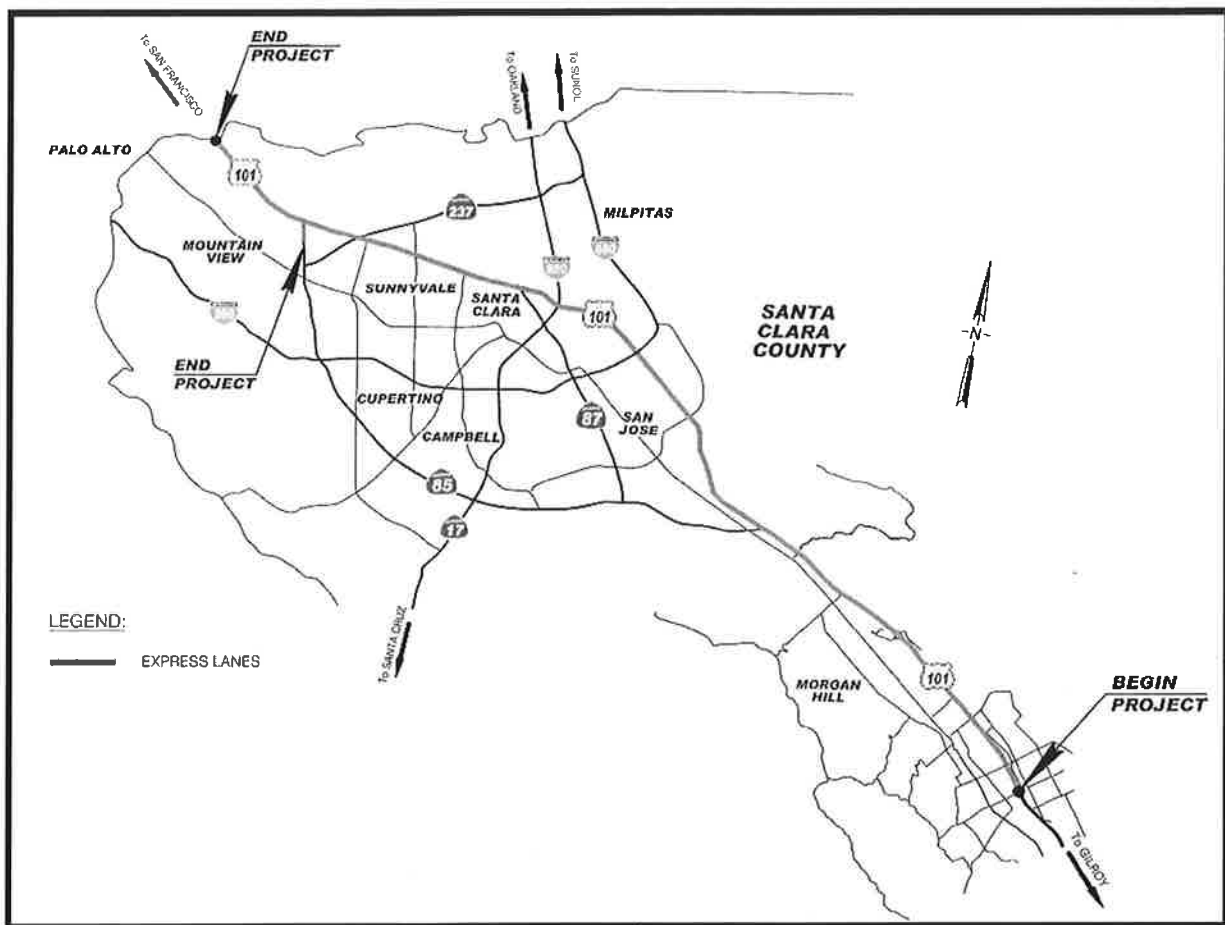
## **15 ATTACHMENTS**

ATTACHMENT A	Project Location and Vicinity Maps
ATTACHMENT B	Preliminary Access Locations
ATTACHMENT C	Typical Access Striping Detail
ATTACHMENT D	Typical Cross Sections
ATTACHMENT E	Preliminary Cost Estimates
ATTACHMENT F	Preliminary Environmental Analysis Report (PEAR)
ATTACHMENT G	Transportation Planning Scoping Information Sheet
ATTACHMENT H	Right of Way Conceptual Cost Estimate
ATTACHMENT I	Risk Management Plan

04 - SC1 - 101 - PM 16.00/52.55  
04-SC1-85 – PM 23.0/24.1  
EA #04-2G710K, 0400001163

# **ATTACHMENT A**

## **Project Location and Vicinity Maps**



NO SCALE



**US 101 Express Lanes Project**  
Dunne Ave to San Mateo/Santa  
Clara County Line

**PROJECT LOCATION & VICINITY**  
**Attachment A**

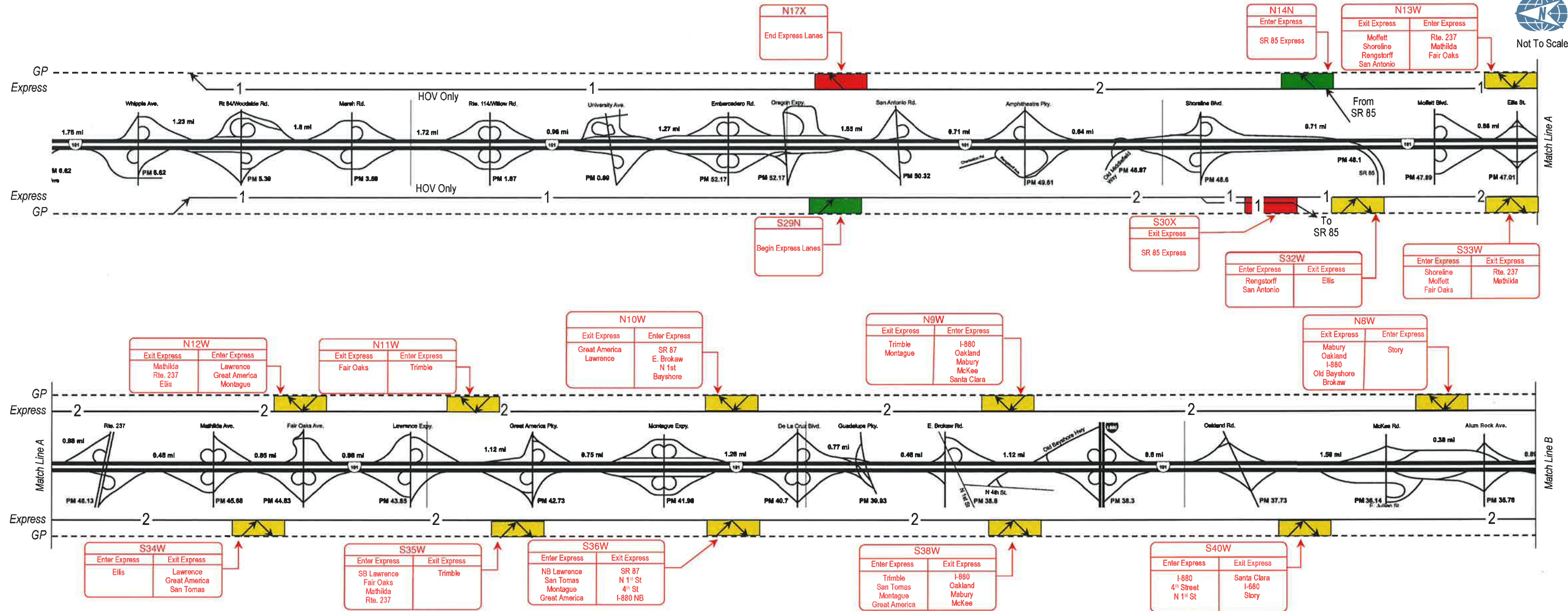
04 - SCI - 101 - PM 16.00/52.55  
04-SCI-85 – PM 23.0/24.1  
EA #04-2G710K, 0400001163

## **ATTACHMENT B**

### **Preliminary Access Locations**

# ATTACHMENT B PRELIMINARY ACCESS LOCATIONS

US 101 Express Lanes Project



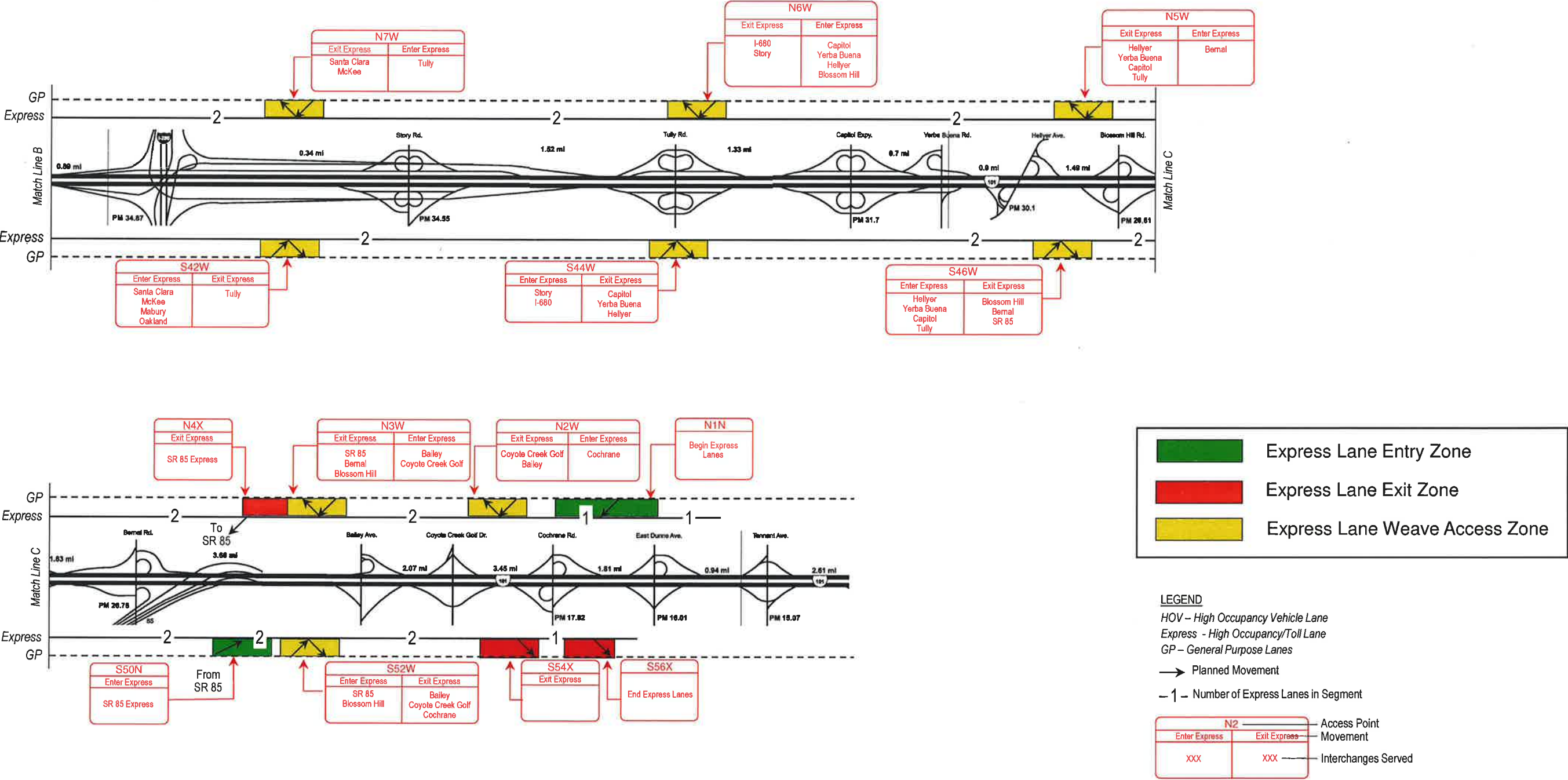
**LEGEND**

HOV – High Occupancy Vehicle Lane  
Express – High Occupancy/Toll Lane  
GP – General Purpose Lanes  
→ Planned Movement  
– 1 – Number of Express Lanes in Segment

N2		Access Point
Enter Express	Exit Express	Movement
xxx	xxx	Interchanges Served

**US 101 Express Lanes Project  
Double Express Lanes with M4 Weave Detail**

ATTACHMENT B  
PRELIMINARY ACCESS LOCATIONS

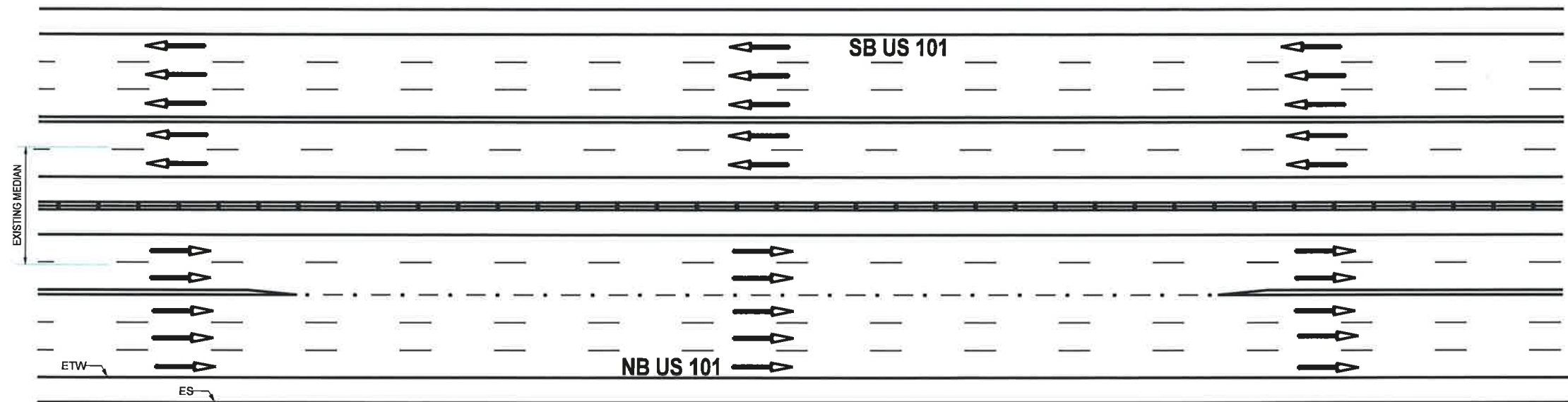


US 101 Express Lanes Project  
Double Express Lanes with M4 Weave Detail

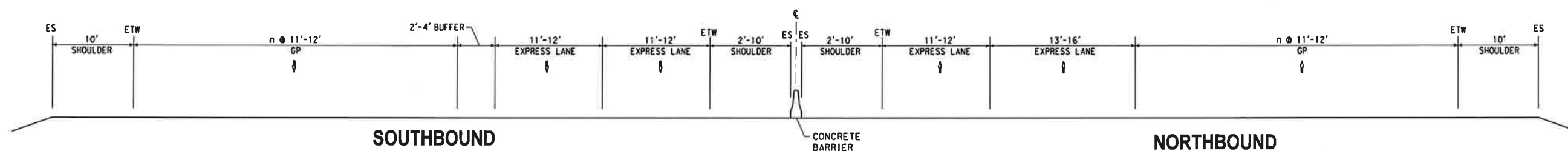
04 - SCI - 101 - PM 16.00/52.55  
04-SCI-85 – PM 23.0/24.1  
EA #04-2G710K, 0400001163

**ATTACHMENT C**  
**Typical Access Striping Detail**





**TYPICAL M-4 ACCESS - WEAVE**



**STANDARD M-4 ACCESS TYPICAL SECTION**

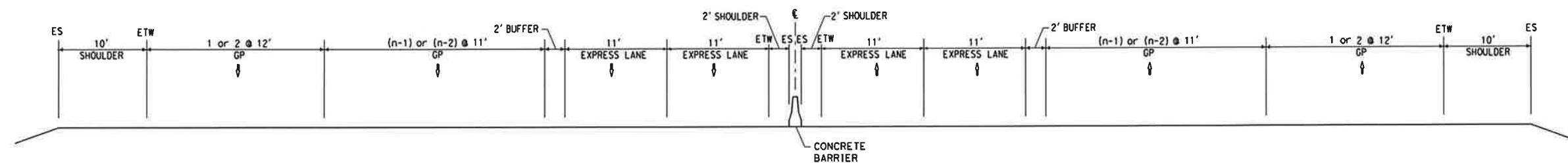
**ABBREVIATIONS**

GP - GENERAL PURPOSE LANES  
n - NUMBER OF GENERAL PURPOSE LANES

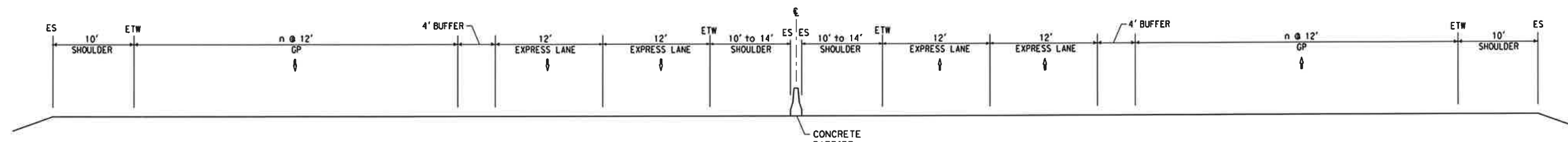
04 - SCI - 101 - PM 16.00/52.55  
04-SCI-85 – PM 23.0/24.1  
EA #04-2G710K, 0400001163

## **ATTACHMENT D**

### **Typical Cross Sections**



DESIGN VARIATION 1



DESIGN VARIATION 2

**ABBREVIATIONS**

GP - GENERAL PURPOSE LANES  
 n - NUMBER OF GENERAL PURPOSE LANES

FREQUENT



**URS**

NOT TO SCALE  
 DIMENSIONS IN FEET

**PRELIMINARY STUDY  
 FOR DISCUSSION ONLY**

**US-101 EXPRESS LANES PROJECT**

**ATTACHMENT D  
 TYPICAL CROSS SECTIONS**

Figure  
**1**  
 MAY 2012

04 - SCI - 101 - PM 16.00/52.55  
04-SCI-85 – PM 23.0/24.1  
EA #04-2G710K, 0400001163

## **ATTACHMENT E**

### **Preliminary Cost Estimates**

## Project Study Report – Project Development Support Cost Estimate

### DESIGN VARIATION 1

#### PROJECT DESCRIPTION:

Limits: EAST DUNNE AVENUE (MORGAN HILL) TO SANTA CLARA/SAN MATEO COUNTY LINE  
PALO ALTO

Proposed Improvement (Scope): RAPID DELIVERY APPROACH, REQUIRES JUSTIFICATION AND  
APPROVAL OF NON STANDARD FEATURES

Alternate: FACILITY IN SUBSTANTIAL COMPLIANCE WITH THE MINIMUM DESIGN STANDARDS

#### SUMMARY OF PROJECT COST ESTIMATE

TOTAL ROADWAY ITEMS	<u>\$282,000,000</u>
TOTAL STRUCTURE ITEMS	<u>\$6,000,000</u>
TOTAL ENVIRONMENTAL MITIGATION ITEMS	<u>\$15,000,000</u>
<b>SUBTOTAL CONSTRUCTION COSTS</b>	<b><u>\$303,000,000</u></b>
ESCALATION TO 2015	<u>\$29,000,000</u>
<b>TOTAL CONSTRUCTION COSTS</b>	<b><u>\$332,000,000</u></b>
TOTAL RIGHT OF WAY ITEMS	<u>\$500,000</u>
TOTAL PROJECT SUPPORT COST	<u>\$87,500,000</u>
<b>TOTAL PROJECT COST</b>	<b><u>\$420,000,000</u></b>

## I. ROADWAY ITEMS

	<u>Average Cost per Lane Mile</u>	<u>Number of Miles</u>	<u>Total Cost</u>
Total Cost of Lane Miles	<u>\$7,500,000</u>	<u>37.65</u>	<u>\$282,000,000</u>

The Total Roadway Items Cost Include Earthwork Calculations (including Roadway Excavation, Clearing and Grubbing and Develop Water Supply), Pavement Structural Section, Drainage, Specialty Items (including Erosion Control, Storm Water BMP, Remove Miscellaneous items, Concrete Barrier Type 60C, Remove Concrete Barrier, Metal Beam Guard Rail, and Retaining Walls), Traffic Items (including Traffic Delineation Items, Overhead Sign Structures, Roadside and Barrier Mounted Signs, Traffic Control System, Traffic Management Plan, ETS Design and Install), Minor Items, Roadway Mobilization, Roadway Additions such as Supplemental Work and Contingencies.

## II. STRUCTURES ITEMS

TOTAL STRUCTURES ITEMS	<u>\$6,000,000</u>
------------------------	--------------------

Bridge Widening for the following Undercrossing Structures is required: Coyote Creek Golf Drive, Utility Facility, Bernal Road, Coyote Road, Yerba Bernal Road and Ellis Street.

### III. ENVIRONMENTAL MITIGATION

TOTAL ENVIRONMENTAL MITIGATION      \$15,000,000

The Total Environmental Mitigation Cost was estimated to be 5% of the total construction cost for the project. This was used as an order-of-magnitude cost estimate for future mitigation projects. The mitigation will be further evaluated during the PA-ED and PS&E phases.

### IV. RIGHT OF WAY ITEMS

TOTAL RIGHT OF WAY ITEMS      \$500,000

Anticipated Date of Right of Way Certification      Winter 2014  
(Date to which values are escalated)

The Total Right of Way Items Cost Includes (Acquisition, including excess lands), damages to remainders and Goodwill, Utility Relocation, Relocation Assistance, Clearance/Demolition, TCE/Permit to Enter, BCDC Mitigation.

### V. SUPPORT COST

TOTAL SUPPORT COST      \$87,500,000

The Total Support Cost Includes Project Report and Environmental Documentation, Design Phase (PS&E) and Construction Administration.

## Project Study Report – Project Development Support Cost Estimate

### DESIGN VARIATION 2

#### PROJECT DESCRIPTION:

Limits: EAST DUNNE AVENUE (MORGAN HILL) TO SANTA CLARA/SAN MATEO COUNTY LINE  
PALO ALTO

Proposed Improvement (Scope): FACILITY IN SUBSTANTIAL COMPLIANCE WITH THE MINIMUM  
DESIGN STANDARDS

Alternate: RAPID DELIVERY APPROACH, REQUIRES JUSTIFICATION AND APPROVAL OF NON-  
STANDARD FEATURES

#### SUMMARY OF PROJECT COST ESTIMATE

TOTAL ROADWAY ITEMS	<u>\$350,000,000</u>
TOTAL STRUCTURE ITEMS	<u>\$239,000,000</u>
TOTAL ENVIRONMENTAL MITIGATION ITEMS	<u>\$30,000,000</u>
<b>SUBTOTAL CONSTRUCTION COSTS</b>	<b><u>\$619,000,000</u></b>
ESCALATION TO 2015	<u>\$58,000,000</u>
<b>TOTAL CONSTRUCTION COSTS</b>	<b><u>\$677,000,000</u></b>
TOTAL RIGHT OF WAY ITEMS	<u>\$286,000,000</u>
TOTAL PROJECT SUPPORT COST	<u>\$171,000,000</u>
<b>TOTAL PROJECT COST</b>	<b><u>\$1,134,000,000</u></b>



## I. ROADWAY ITEMS

	<u>Average Cost per Lane Mile</u>	<u>Number of Miles</u>	<u>Total Cost</u>
Total Cost of Lane Miles:	<u>\$9,300,000</u>	<u>37.65</u>	<u>\$350,000,000</u>

The Total Roadway Items Cost Include Earthwork Calculations (including Roadway Excavation, Clearing and Grubbing and Develop Water Supply), Pavement Structural Section, Drainage, Specialty Items (including Erosion Control, Storm Water BMP, Remove Miscellaneous items, Concrete Barrier Type 60C, Remove Concrete Barrier, Metal Beam Guard Rail, and Retaining Walls), Traffic Items (including Traffic Delineation Items, Overhead Sign Structures, Roadside and Barrier Mounted Signs, Traffic Control System, Traffic Management Plan, ETS Design and Install), Minor Items, Roadway Mobilization, Roadway Additions such as Supplemental Work and Contingencies.

## II. STRUCTURES ITEMS

TOTAL STRUCTURES ITEMS \$239,000,000

Abutment Modifications for the following Overcrossing Structures are required: Burnett Avenue, Bailey Road, Metcalf Road, Blossom Hill Road, San Antonio Street, Alum Rock Avenue, McKee Road, Hedding Street, Oakland Road, Guadalupe Parkway, De La Cruz Blvd, Lafayette Street, Montague Expressway, Great America Parkway, Lawrence Expressway, North Fair Oaks, North Mathilda Drive, SR 237, Moffett Boulevard, Old Middlefield Way and San Antonio Road.

Widening of the following Undercrossing Structures are required: Coyote Creek, Bernal Road, Coyote Road, Coyote Creek, Yerba Buena Road, Silver Creek, Coyote Creek, North 1<sup>st</sup> Street, East Brokaw Road, Guadalupe River, San Thomas Aquino Creek Bridge, Ellis Street and Box Culvert.

Rebuilding Flyover for the following Overcrossing Structures: SR85/US101.

Reconstruction of the following Overcrossing Structures because of existing column bents in the outside shoulders are required: Hellyer Avenue, East Capitol Expressway, Tully Road, Story Road, I-280-I-680/US 101 Interchange, 3 Railroad crossings and Rengstorff Avenue.

### III. ENVIRONMENTAL MITIGATION

TOTAL ENVIRONMENTAL MITIGATION     \$30,000,000

#### Explanation:

The Total Environmental Mitigation Cost was estimated to be 5% of the total construction cost for the project. This was used as an order-of-magnitude cost estimate for future mitigation projects. The mitigation will be further evaluated during the PA-ED and PS&E phases.

### IV. RIGHT OF WAY ITEMS

TOTAL RIGHT OF WAY ITEMS                     \$286,000,000

Anticipated Date of Right of Way Certification

Winter 2014

(Date to which values are escalated)

The Total Right of Way Items Cost Includes (Acquisition, including excess lands), damages to remainders and Goodwill, Utility Relocation, Relocation Assistance, Clearance/Demolition, TCE/Permit to Enter, BCDC Mitigation.

### V. SUPPORT COST

TOTAL SUPPORT COST                             \$171,000,000

The Total Support Cost includes Project Report and Environmental Documentation, Design Phase (PS&E) and Construction Administration.

04 - SCI - 101 - PM 16.00/52.55  
04-SCI-85 – PM 23.0/24.1  
EA #04-2G710K, 0400001163

**ATTACHMENT F**  
**Preliminary Environmental Analysis Report (PEAR)**



## PRELIMINARY ENVIRONMENTAL ANALYSIS REPORT

### 1. Project Information

District 4	County Santa Clara	Route US 101 SR 85	PM SCL-101, PM 16.0-52.55, SCL- 85, PM 23.0/24.1	EA 2G710K 0400001163
Project Title: US 101 Express Lanes Project				
Project Manager Lam Trinh, Valley Transportation Authority			Phone # 408-952-4217	
Project Engineer Chadi Chazbek, URS Corporation			Phone # 408-961-8415	
Environmental Office Chief/Manager Tom Fitzwater, Valley Transportation Authority			Phone # 408-321-5705	
PEAR Preparer Jeff Zimmerman, URS Corporation			Phone # 510-874-3005	

### 2. Project Description

#### Purpose and Need

The purpose of the project is to:

- Manage traffic congestion in the most congested HOV segments of the freeway between the SR 85 interchange in southern San Jose and the Oregon Expressway/Embarcadero Road interchange in Palo Alto, and
- Maintain consistency with provisions defined in Assembly Bill 2032 (2004) and Assembly Bill 574 (2007) to implement express lanes in the US 101 and SR 85 corridor.

#### Transportation Demand

In Santa Clara County, US 101 typically has three mixed-flow lanes and a single HOV lane in each direction, with auxiliary lanes (lanes that extend from on-ramps to off-ramps) in some segments. Within the project limits, US 101 carries up to 256,000 vehicles per day, including HOV traffic, between Morgan Hill in the south and Palo Alto in the north (Caltrans 2011<sup>1</sup>).

---

<sup>1</sup> Caltrans 2011. Traffic Operational Assessment, San Francisco Bay Area Backbone Express Lanes Network, August 31, 2011, California Department of Transportation, District 4 – Office of Highway Operations. URL: [http://www.mtc.ca.gov/planning/hov/Caltrans\\_Letter\\_of\\_Support\\_and\\_Ops\\_assesment\\_09-02-2011.pdf](http://www.mtc.ca.gov/planning/hov/Caltrans_Letter_of_Support_and_Ops_assesment_09-02-2011.pdf).

High transportation demand in several segments of the mixed-flow lanes leads to substantial congestion and reduced speeds for SOVs. During the peak periods (6 AM to 9 AM and 3 PM to 6 PM), US 101 cannot accommodate all of the traffic demand in the corridor, causing “bottlenecks” in numerous segments of the mixed-flow lanes. As a result, the mixed-flow lanes function below the posted speed limit in some segments.

In addition to the congestion in the mixed-flow lanes, drivers in the HOV lane also experience delays in some HOV segments on US 101 between SR 85 in San Jose and the Oregon Expressway/Embarcadero Road interchange in Palo Alto. AB 2032 (2004) set the requirement that HOV lanes must operate at least at Level of Service (LOS) C or D, which indicates minimal<sup>2</sup> delays and corresponds to a target threshold of approximately 1,650 (vehicles per hour) vph per HOV lane. The 1,650 vph threshold is intended to provide HOVs with reliable travel time savings.

Based on this threshold, parts of the northbound and southbound HOV lanes are already at or approaching capacity in the downtown San Jose area (Caltrans 2011), and specific segments of US 101 have been identified as points of congestion, or bottleneck locations, based on existing traffic conditions information and field observations.<sup>3</sup> In general, the bottleneck locations on US 101 consistently occur, but the queue lengths and durations may vary depending on conditions and source of information. The following currently occur during the AM peak period in the northbound direction:

- Tully Road Loop On-Ramp to Tully Road Diagonal On-Ramp: The queue from this bottleneck forms around 7:10 AM and dissipates by 9:30 AM. It extends back to the Hellyer Avenue On-Ramp (approximately 3.6 miles), overlapping with a secondary bottleneck observed within this bottleneck. The segment between Capitol Expressway On-Ramp and Tully Road Off-Ramp was observed to be a secondary bottleneck.
- Oakland Road On-Ramp to northbound I-880 Off-Ramp: The queue from this bottleneck forms around 7:15 AM and dissipates by 9:30 AM. It extends back to the Alum Rock Ave Off-Ramp (approximately 2.5 miles). At times, the segment between McKee On-Ramp and Old Oakland Rd Off-Ramp was observed to be a secondary bottleneck or even the controlling bottleneck in this area.
- Trimble Road On-Ramp to Montague Expressway Off-Ramp: The queue from this bottleneck forms around 7:10 AM and dissipates by 10:00 AM. It extends back to the Old Bayshore Highway Off-Ramp (approximately 2.5 miles).
- Shoreline Boulevard On-Ramp to northbound Rengstorff Ave Off-Ramp: The queue from this bottleneck forms around 7:00 AM and dissipates by 10:00 AM. It extends back to the Moffett Boulevard Off-Ramp (approximately 1.5 miles).

During the AM peak period in the southbound direction the following bottleneck locations were identified:

---

<sup>2</sup> Level of Service is an indicator of operational conditions on a freeway and is defined in categories ranging from A to F. These categories can be viewed much like school grades, with A representing the best conditions and F indicating substantial congestion with stop-and-go traffic. On freeways, LOS is evaluated in terms of the ability to travel at the posted speed limit and maneuver easily among lanes.

<sup>3</sup>DKS Associates. Existing Conditions and Model Calibration Report, Draft, prepared for Santa Clara Valley Transportation Authority. September 2011,

- Oregon Expressway On-Ramp to San Antonio Road Off-Ramp: The queue from this minor bottleneck forms around 8:30 AM and dissipates by 9:45 AM and is mainly controlled by the University Avenue to Oregon Expressway bottleneck identified above. It extends approximately 0.5 miles north of the Embarcadero Road Off-Ramp.

During the PM peak period in the northbound direction the following bottleneck locations were identified:

- Oregon Expressway/Embarcadero Road On-Ramp to University Avenue Off-Ramp: The queue from this bottleneck forms around 3:45 PM and dissipates by 6:30 PM. It extends back through the Oregon Expressway/Embarcadero Road interchange, and is largely controlled by the upstream bottleneck from San Antonio Road to Oregon Expressway identified below.
- San Antonio Road On-Ramp to Oregon Expressway/Embarcadero Road Off-Ramp: The queue from this bottleneck forms around 3:45 PM and dissipates by 6:45 PM. It extends back to the Ellis Street Off-Ramp (approximately 3.8 miles), overlapping with a secondary bottleneck observed within this bottleneck. The segment between Shoreline Boulevard On-Ramp and northbound Rengstorff Ave Off-Ramp was observed to be a secondary bottleneck.

During the PM peak period in the southbound direction the following bottleneck locations were identified:

- Oregon Expressway On-Ramp to San Antonio Road Off-Ramp: The queue from this bottleneck forms around 4:10 PM and dissipates by 6:45 PM. It extends back to between the Marsh Rd and Woodside interchanges (approximately 4.0 mi).
- Rengstorff Avenue On-Ramp to Old Middlefield Way On-Ramp: The queue from this bottleneck forms around 4:10 PM and dissipates by 6:15 PM. It extends back to the San Antonio Road Off-Ramp (approximately 1.0 mile) where the queue spills over and merges with the Oregon Expressway to San Antonio Road bottleneck identified above.
- De La Cruz Boulevard On-Ramp to State Route 87 Off-Ramp: The queue from this bottleneck forms around 3:15 PM and dissipates by 7:00 PM. It extends back to the Lawrence Expressway Off-Ramp (approximately 3.6 miles) although some data shows the queue extends only to the San Tomas/Montague Expressway interchange.
- Oakland Road On-Ramp to McKee Road Off-Ramp: The queue from this bottleneck forms around 4:10 PM and dissipates by 6:35 PM. It extends back to the Old Bayshore Highway On-Ramp (approximately 1.3 miles).
- Between the lane drop downstream of the Story Road On-Ramp and I-280/I-680 On-Ramp: The queue from this bottleneck forms around 3:00 PM and dissipates by 7:00 PM. It extends back to the Santa Clara Street On-Ramp (approximately 1.5 miles).
- Tully Road on-Ramp to Capitol Expressway off-Ramp– The queue from this bottleneck forms around 4:30 PM and dissipates by 7:00 PM. It extends back to the SB Story Road Off-Ramp (approximately 2.2 miles) where the queue spills over and merges with Story Road to I-280/I/680 bottleneck identified above.

The San Francisco Bay-Area Backbone Express Lanes Network report (Caltrans 2011) notes that because of the existing high demand for the HOV lanes, an additional lane would need to be constructed in both directions to provide a two-lane express lane facility with sufficient capacity.

## **Projected Travel Demand**

Traffic conditions are expected to worsen in the future with continued development in the region and along US 101 within the project limits. The congested areas previously noted will expand in distance, and the periods of peak congestion will extend over a longer time. Over the next 25 years, Santa Clara County is predicted to grow by over 500,000 residents and 400,000 jobs, increases of 27.5 and 45.6 percent, respectively. Over the same period, the County expects to increase the capacity of the roadway system by 5 to 6 percent.

Traffic on US 101 is also projected to increase in the form of both regional trips and local trips to and from locations on the US 101 corridor. The ability to accommodate traffic growth will be constrained by the existing capacity of the freeway. The US 101 corridor is bordered by residential, commercial and industrial development throughout most of the project limits. The adjoining land uses limit the potential to expand US 101 to meet existing or future demand without resulting in substantial property acquisitions and residential and business relocations.

Growth in travel demand on US 101 is expected to cause morning and afternoon peak traffic conditions to spread into longer periods of time when unacceptable delays persist. Congestion will increase in the mixed-flow lanes, and the HOV lanes will experience delays and no longer provide the travel time benefits intended for the facility. Traffic demand for the northbound HOV lane is expected to increase to about 2,000 vph in 2035 (Caltrans 2011). The resulting delays can reasonably be expected to diminish the public's incentive to carpool or use public transit in the US 101 HOV lanes.

## **Legislation**

In 2004 the California Legislature passed Assembly Bill 2032 authorizing VTA, as part of a demonstration project, to conduct, administer, and operate a value pricing and transit development program under which SOVs may use designated HOV lanes at certain times of the day for a fee. In 2007, Assembly Bill 574 was passed, removing the "demonstration" category from the law and allowing VTA to implement a value pricing program permanently within any two corridors in the Santa Clara County HOV lane system.

The enabling legislation stipulates that revenue collected from the express lanes will provide a new source of revenue needed to support transportation improvements and transit projects within the corridor.

## **Independent Utility and Logical Termini**

The project limits encompass the majority of the urbanized length of US 101 within Santa Clara County, including the locations described where congestion occurs and the need for additional capacity or operational improvement exists. South of the US 101/SR 85 interchange in the City of Morgan Hill, the dual express lanes merge into the existing freeway in the southbound direction just north of the Cochrane Road interchange. In the northbound direction, a single express lane opens just north of East Dunne Avenue which allows motorists to enter the facility, which then transitions to a dual limited access express lane just north of the Cochrane Road interchange. The southern project limits near Cochrane Road were therefore selected to accommodate installation of signage south of the limits of construction of the express lanes. At the north end of the project within Santa Clara County, US 101 is physically constrained by land use development on both sides, and additional pavement needed to extend the express lanes farther to the north cannot be accommodated without significant additional right-of-way,

environmental, and construction costs. The northern limits of construction would be just south of the Oregon Expressway/Embarcadero Road interchange. To allow flexibility for placement of signage, the limits of the project were set just north of the Oregon Expressway/Embarcadero Road interchange. These limits encompass the majority of points of congestion described earlier and the downtown San Jose area, where some HOV lane segments are currently at or near capacity during peak periods. At over 36 miles long, the facility by itself will have more than sufficient length to provide motorist options for time savings. The project includes sufficient area to address all needed project improvements and their potential environmental impacts.

Any future extension of express lanes into San Mateo County is being evaluated separately by VTA and San Mateo County Transportation Authority. These discussions will continue through all phases of the project to coordinate the express lane network implementation. The US 101 Express Lanes Project can be implemented and operated as an independent project in its currently defined limits regardless of whether express lanes are implemented in San Mateo County.

The project will not prevent consideration of alternatives for other foreseeable transportation improvements on US 101. The following projects have been identified within or adjacent to the limits of the US 101 Express Lanes project in the MTC's RTP 2035 (H# indicates the matching designation number of the project in VTA's VTP 2035):

- H1: SR 85 Express Lanes from US 101 in Mountain View to US 101 in South San Jose – Reference Number 230674 (currently undergoing environmental review)
- H9: SR 237 Express Lanes from Mathilda Avenue to SR 85 – Reference Number 230677
- H23: Reconstruct the interchange at US 101 and Montague Expressway – Reference Number 230262
- H24: Improve US 101 southbound Trimble Road/De La Cruz Boulevard/Central Expressway interchange – Reference Number 21722 (currently in the planning phase)
- H25: Reconfigure local roadway and interchange at US 101/Blossom Hill Road in San Jose – Reference Number 21785
- H26: Construct US 101/Mabury Road/Taylor Road interchange – Reference Number 22965
- H28: Implement local roadway improvements to Old Oakland Road over US 101 – Reference Number 230492
- H29: US 101 Southbound widening: Story Road to Yerba Buena Road, —Adds a lane on southbound US 101 between south of Story Road to Yerba Buena Road. The project also includes the modification of the US 101/Tully Rd. interchange to a partial cloverleaf (currently under construction)
- H30: Improve US 101/Capitol Expressway interchange (includes new northbound on-ramp from Yerba Buena Road) – Reference Number 22142. Construction is anticipated to begin in summer 2012
- H33: Construct auxiliary lanes on US 101 in Mountain View and Palo Alto from SR 85 to Embarcadero Road – Reference Number 230531 (currently under construction)
- H44: Improve US 101 southbound ramps at 10th Street – Reference Number 230347
- H48: US 101/Zanker Road/Skyport Drive/Fourth Street Interchange improvements
- H50: Widen southbound US 101 off-ramp at Cochrane Road from two to three lanes – Reference Number 230350



- H65: Extend Mary Avenue north across SR 237 (includes reconfiguring the US 101/Mathilda Avenue interchange – Reference Number 22153)
- H67: Widen westbound SR 237 on-ramp from SR 237 to northbound US 101 to 2 lanes and add auxiliary lane on northbound US 101 from the SR 237 on-ramp to the Ellis Street interchange – Reference Number 22145

Additional improvements that are in the VTP 2035 but not in the RTP 2035 include:

- H27: US 101 Southbound Auxiliary Lane: Great America Parkway to Lawrence Expressway
- H32: US 101 Southbound Auxiliary Lane widening: I-880 to McKee
- H47: US 101/Hellyer Avenue Interchange improvements
- H49: US 101 Southbound Auxiliary Lane improvement: Ellis Street to SR 237
- H55: US 101 Southbound Improvements: San Antonio Road to Charleston Road/Rengstorff Avenue

The proposed project will not preclude implementation of these planned improvements. For other regional projects, the addition of express lanes will be independently considered on SR 87 and SR 237 within Santa Clara County. The range of design alternatives considered for those projects are not anticipated to be affected by express lanes on US 101.

### **Description of work**

The project consists of converting the existing HOV lane along both northbound and southbound US 101 into an express lane and widening the freeway to add a second express lane for the majority of the corridor. The project also proposes to build new express lanes in the northbound direction between East Dunne Avenue and the existing HOV lane at Cochrane Road, and in the southbound direction between Burnett Avenue and Cochrane Road. The express lanes would allow HOVs to continue to use the lanes without cost and eligible single-occupant vehicles (SOVs) to pay a toll.

The improvements will result in a two-lane limited access express lane facility in both directions extending from just south of the Cochrane Road interchange in Morgan Hill to just south of the Oregon Expressway/Embarcadero Road interchange in Palo Alto in the northbound direction, and from just south of the Oregon Expressway/Embarcadero Road interchange to just south of the Burnett Avenue overcrossing in the southbound direction.

The addition of the second express lane will involve a combination of inside and outside widening. The majority of the inside widening will occur within the US 101 segments south of the SR 85/US 101 interchange in southern Santa Clara County where a wide unpaved median exists. The project proposes to widen and pave the median to accommodate the additional lanes. The outside widening will occur in the remainder of the corridor to accommodate the additional lanes where needed.

The express lanes facility would be separated from the adjacent mixed-flow lanes by a striped buffer. The buffer zone, delineated with solid stripes, will have designated openings to provide access into and out of the express lanes facility.

The purpose of the project is utilize available capacity in the US 101 HOV lanes, manage traffic congestion in the most congested HOV segments of the freeway between the SR 85 interchange in southern San Jose and the Oregon Expressway/Embarcadero Road interchange in Palo Alto, and maintain consistency with provisions defined in Assembly Bill 2032 (2004) and Assembly Bill 574 (2007) to implement express lanes in the US 101 and SR 85 corridor.

### ***Build Alternative***

The Build Alternative would convert the existing HOV lanes into express lane facilities, and add a second express lane in each direction (resulting in two express lanes in each direction). The express lanes would allow use by HOVs, and SOVs with active FasTrak accounts and transponders. Single-occupant drivers who are willing to pay the posted toll can shift from the congested mixed-flow lanes into the toll lanes to take advantage of higher travel speeds. Pricing (tolls) will be adjusted as necessary for each peak period to maintain a minimum level of service standard in the express lanes. This will ensure that carpool vehicles will continue to benefit now and in the future from reliable travel time in comparison to the mixed flow lanes. The overall performance of the freeway during peak periods will improve because the project would add an express lane in each direction and allow vehicles to utilize the available space in the existing HOV lanes. The shift of vehicles into the express lanes would enhance operations of the mixed flow lanes.

Two design variations are identified for the Build Alternative. Design Variation 1 proposes a Rapid Delivery Approach and requires justification and approval of several non-standard features. This variation constructs and operates the express lane system with some non-standard cross sectional elements that minimize the need for new right-of-way, outside widening, and structure reconstruction. Design Variation 1 maximizes the use of the existing pavement cross section with a combination of inside and outside widening to create the additional pavement needed to accommodate the second express lane.

Design Variation 2 would be a facility in substantial compliance with the minimum design standards. This variation relies substantially on outside widening of the highway cross section, including widening of most bridge structures. To provide standard cross section widths, Design Variation 2 requires additional new right-of-way involving acquisition of partial and full private parcels, realignment of existing frontage roads, and widening or reconstruction of existing structures throughout the corridor.

**Express Lane Access.** The express lanes would be adjacent to the center median and separated from the mixed-flow lanes by a striped buffer zone. The buffer zone would have gaps in multiple locations where vehicles can enter and exit the facility (called “access points”).

The project would include signage to advise express lane users that entering or exiting the facility anywhere other than designated buffer zones is a traffic violation.

**US 101/SR 85 Direct Connectors.** At the south end of the project in southern San Jose, both the northbound and southbound HOV direct connectors from SR 85 to US 101 will be converted to express lane connectors by the SR 85 Express Lanes Project, allowing use by SOVs with valid FasTrak devices. At the north end of the project in Mountain View, the US 101 Express Lanes

Project will convert the existing HOV direct connectors to express lane connectors and will extend the buffer striping onto SR 85. The combination of SR 85 and US 101 Express Lanes projects will provide a complete express lane system on both freeways that includes the direct connectors.

**Right of Way.** Design Variations 1 and 2 have different right-of-way requirements. It is anticipated that Design Variation 1 will require limited right-of-way in the form of partial acquisitions and Temporary Construction Easements (TCE) while Design Variation 2 will require significant right of way acquisition (partial and full take), temporary construction easements, and relocation of frontage roads and local streets to accommodate the proposed cross-sectional width of the facility. The preliminary order of magnitude cost estimates for each design variation can be found in Attachment H. Right of way activities will be coordinated during the PA/ED phase.

**Construction.** The piles for the overhead signs would be from 3 to 6 feet in diameter and extend to approximately 30 feet below ground surface. The piles for the tolling devices would be 1 to 2 feet in diameter and would extend to approximately 10 feet below ground surface. Some Traffic Operations Systems (TOS) equipment such as traffic monitoring stations, Closed Circuit Televisions, cabinets, and controllers would be installed along the outside edge of pavement within the existing right-of-way. Maintenance pullouts would be installed in shoulder areas to allow access to the TOS equipment. The specific locations of these features would be developed during final project design.

Trenching would be conducted along the outside edge of pavement for installation of conduits. The depth of trenching would be 3 to 5 feet below the roadway surface. Conduits would be jacked across the freeway to the median where needed to provide power and communication feeds to the new overhead signage and tolling equipment.

During construction, some lane and ramp closures would be required, but full freeway closures are not expected.

### ***No Build Alternative***

The No Build Alternative assumes no modifications would be made to the current US 101 corridor, including the continuous access HOV lane, other than routine maintenance and rehabilitation of the facility and any currently planned and programmed projects within the area.

The No Build Alternative would not provide the traffic congestion management that would result from the proposed project. It would not provide managed-toll lanes that allow drivers to use the available space in the HOV lanes during peak periods. Drivers would remain limited to a choice of using the HOV lanes or remaining in the congested mixed-flow lanes. Under this scenario, traffic conditions and congestion will continue to degrade with increased future freeway traffic demand. The No Build Alternative eliminates an option to maximize use of already available highway capacity; other options to meet future demand would involve more substantial highway widening improvements, with the potential to impact adjoining land uses or environmental resources. Environmental impacts from the No Build Alternative could include increased air pollutant emissions associated with delayed, slower traffic and the possible need to make

physical improvements such as new travel lanes. The No Build Alternative would not meet the purpose and need of the project.

### ***Alternatives Considered But Eliminated from Further Discussion***

Other alternatives were considered during the early stages of project development but were eliminated because they did not meet the project's purpose and need, could not be constructed, or would have unacceptable environmental impacts.

**Single Express Lane/Separate Access Points.** Converting the existing HOV lane in each direction to an express lane was considered. However, traffic forecasts predict that in less than 20 years the existing HOV lane will meet or exceed the capacity (about 1650 vph per lane). As that occurs, speeds would decline to a level where there will be no excess capacity available in the HOV lane for SOVs willing to pay a toll to use the express lanes. The single-lane alternative was also eliminated because it would preclude the future construction of a second express lane in the US 101 corridor. The separate ingress/egress option for a single-lane alternative would not have the same access points as a two-lane facility. Therefore, transitioning to two express lanes in the future (which is the ultimate vision for US 101 as currently proposed) would require reconstruction of all overhead sign structures, electronic toll equipment, and access zones in new locations.

**Single Express Lane/Shared Access Points.** This alternative would be similar to the Separate Access Points concept described above (convert the single HOV lane to a single express lane), but will feature designated, combined entrance and exit openings to provide access into and out of the express lane facility. It has the same future capacity constraints described for the previous separate access points alternative but also introduces more concentrated weaving movements at each access point that could negatively impact travel flow. Because this alternative would introduce additional congestion points at the weaving locations, it was dropped from further consideration.

**Add Additional Mixed Flow Lane(s).** An additional mixed flow lane, added to the freeway in each direction, would increase the capacity of the highway and improve traffic conditions, including at bottleneck locations. Pavement would be added as needed, and the freeway would be restriped to maintain the existing HOV lane adjacent to the inside median. However, adding a mixed flow lane would not relieve congestion in the HOV lane. It was therefore not considered further.

**Add Separated Express Lane and HOV Lane.** This alternative would also add a new lane in each direction. The existing HOV lane would remain as a facility for HOV users only, and the new lane would serve toll-paying drivers only during peak periods as an express lane. This type of facility would not allow as much flexibility of choice to drivers: all HOV users would be limited to a single lane, as would all express lane users. If HOV use, or express lane use, is high at any given moment, their respective lane would begin to suffer congestion and defeat the efficiency of having HOV or express lanes. Allowing HOV and express lane users to access either of two lanes and mix, allows greater flexibility of choice to the drivers and reduces the potential for congestion. These options were not considered further because they would not avoid any of the environmental impacts of the proposed project, and would not provide superior traffic operations.

### 3. Anticipated Environmental Approval

CEQA		NEPA	
<b>Environmental Determination</b>			
Statutory Exemption	<input type="checkbox"/>		<input type="checkbox"/>
Categorical Exemption	<input type="checkbox"/>	Categorical Exclusion	<input type="checkbox"/>
<b>Environmental Document</b>			
Initial Study or Focused Initial Study with proposed Negative Declaration (ND) or Mitigated ND	<input checked="" type="checkbox"/>	Routine Environmental Assessment with proposed Finding of No Significant Impact	<input checked="" type="checkbox"/>
		Complex Environmental Assessment with proposed Finding of No Significant Impact	<input type="checkbox"/>
Environmental Impact Report	<input type="checkbox"/>	Environmental Impact Statement	<input type="checkbox"/>
CEQA Lead Agency (if determined):		California Department of Transportation	
Estimated length of time (months) to obtain environmental approval:		18 to 30 months, depending on environmental review and project funding.	
Estimated person hours to complete identified tasks:		Environmental Analysis 1410, Biological Sciences and Permits 2410, Office of Environmental Engineering 2700, <b>Total 6,520</b>	

**Rationale for Routine Environmental Assessment with Proposed Finding of No Significant Impact.** This project anticipates an Initial Study/Negative Declaration or Mitigated Negative Declaration and routine Environmental Assessment/Proposed Finding of No Significant Impact for the reasons summarized below:

- No multiple location alternatives. The build alternative consists of two possible design variations involving different widening of the existing highway on its existing alignment.
- No debate on purpose and need and no strong controversy. The purposes of the project are to utilize the existing freeway corridor capacity, help manage congestion, and implement proposed improvements consistent with legislation. These purposes have not generated questions or opposition. Other similar projects have generated some comments regarding paying tolls on State highways, but outreach efforts by VTA have indicated overall support and acceptance for new options for traveling during congested conditions.
- No issues related to logical termini or independent utility. The project termini encompass a route that can provide drivers functional express lanes over a relatively long distance within the most congested portions of US 101 in Santa Clara County. The project may further benefit in the future by being part of a regional express lane network, but will function immediately independent of any planned or potential system improvements.
- No individual Section 4(f). A project objective is to maintain improvements within the existing right-of-way with the exception of temporary construction easements. None, or no substantial use, is anticipated of public parks or recreational facilities for Design

Variation 1. Design Variation 2, if it is carried forward as an option in the environmental document, may have to be modified at some locations to avoid parks and recreational lands. The existing right-of-way also includes cultural resource sites that are listed or eligible for the National Register of Historic Places. These sites will be addressed during the cultural resources review and the objective is to avoid further direct or indirect effects to the sites. It is not anticipated the project would have permanent right-of-way acquisition that would incorporate lands involving significant cultural resource sites. The project can avoid and minimize effects to Section 4(f).

- No complex ESA issues. The project may impact some potential habitat that could be used by endangered species in the southern portion of the existing right-of-way. The potentially affected habitat consists of upland refugia and isolated occurrences of protected plants. Impacts to these areas can be avoided and minimized with measures such as environmentally sensitive area designations and compensatory mitigation.
- No numerous cumulative impacts. No substantial cumulative environmental impacts have been identified to date.
- No high mitigation costs. Mitigation costs will be primarily non-complex biological impacts and mitigation. Cultural resources may require extended investigations, which would occur during the PA&ED phase.

#### **4. Special Environmental Considerations**

The proposed widening of US 101 will involve widening of the existing pavement section to add a second express lane in each direction, and shifting of some of the interchange ramps to connect to the new lanes. Design Variation 2 would require a greater amount of pavement widening than Design Variation 1. This work may affect marginal habitat for the California red-legged frog (*Rana draytonii*), California tiger salamander (*Ambystoma californiense*), and Bay checkerspot butterfly (*Euphydryas editha bayensis*). Central California Coast Steelhead (*Oncorhynchus mykiss*) occurs in some of the larger creek crossings. All four of these species are listed as Threatened under the Federal Endangered Species Act. Section 7 consultation will be required with the U.S. Fish and Wildlife Service (USFWS), and potentially with National Marine Fisheries Service if bridge widening is necessary in one or more of the creeks supporting steelhead. The California tiger salamander is also listed as Threatened under the California Endangered Species Act, requiring coordination with the California Department of Fish and Game (CDFG). Drainage crossings, including culvert work, would require permit approval by agencies described in Section 6, Permits and Approvals, for design options involving work within a creek or creek channel, and seasonal exclusions of work within the drainage areas may be required. Compliance with the 2004 Programmatic Agreement (PA) for Section 106 of the National Historic Preservation Act (NHPA) will be required. Obtaining permits and approvals, identified in the following section, have the potential to extend the project schedule.

#### **5. Anticipated Environmental Commitments**

The following environmental commitments may result from environmental review. This Preliminary Environmental Analysis Report (PEAR) is prepared for a Project Study Report – Project Development Study (PSR-PDS) and therefore no cost estimate for environmental permits or commitments was developed.

- **Water Quality:** The project will involve an increase in paved surface area and associated runoff, or hydromodification. The project must accommodate drainage features that will treat the additional runoff.
- **Hazardous Materials:** There is an unknown potential that some soils and/or groundwater encountered during construction will require special handling because of existing contamination.
- **Noise:** Soundwalls may be necessary at some land uses that are exposed to excessive freeway traffic noise.
- **Biological Resources:** There will be unavoidable impacts to areas of habitat used by endangered species. Some existing drainages or jurisdictional waters may be unavoidable during construction. These impacts will require compensation through purchase of habitat mitigation credits, if available, or creation of new biological habitat at or near the project site.
- **Cultural Resources:** There are known archaeological sites within and near the existing right-of-way, and the potential is high for encountering unknown buried resources. Following the outcome of the identification and valuation phase in accordance with the 2004 PA for compliance with Section 106 of the NHPA, protection and/or mitigation measures for cultural resources may be necessary.

## **6. Permits and Approvals**

The following consultation and approvals are anticipated. These actions would be completed during preparation and completion of the draft and final environmental document.

- **U.S. Fish and Wildlife Service (USFWS):** Formal consultation for threatened and endangered species under Section 7 of the Federal Endangered Species Act is required for presence of at least California red-legged frog, potentially California tiger salamander, and Bay Checkerspot butterfly. USFWS must issue a Biological Opinion prior to approval of the final environmental document.
- **National Oceanic and Atmospheric Administration, National Marine Fisheries Service (NOAA Fisheries):** If a design option involves work within a creek supporting steelhead habitat, consultation will be required with NOAA. NOAA may issue either a letter of informal concurrence, or a Biological Opinion.
- **Federal Highway Administration (FHWA):** Concurrence will be required that the project conforms, at the project level, to the Clean Air Act.
- **Interagency Air Quality Conformity Task Force:** Concurrence will be required from the Task Force that the project is not a Project of Air Quality Concern and conforms, at the regional level, to the Clean Air Act. Consultation must be completed prior to applying to FHWA for project air quality conformity determination. Specific public notification, review, and comment response must be completed.
- **State Historic Preservation Officer (SHPO):** There is a potential for an adverse effect to cultural resources, and design options will be pursued that can avoid such effects. The 2004 Section 106 Programmatic Agreement requires SHPO concurrence on determinations of effect.

The following permit requirements are anticipated. Draft permit applications can be prepared during the preparation and completion of the Preliminary Engineering and Environmental

Document phase of the project schedule; however permits cannot be formally processed and issued by the agencies until after the final environmental document is approved.

- **Army Corps of Engineers (USACE):** The project will require a Preliminary Jurisdictional Determination identifying wetlands and other Waters of the United States within the project boundary. For any work within the jurisdictional areas, approval will be required of a Section 404 Nationwide Authorization or an Individual Permit. Minimum time for a Nationwide Authorization by the Corps is estimated at 3 months, following determination that the application package is complete and with agreement on wetland mitigation. An Individual Permit requires coordination of agency review and approvals of the purpose and need, and alternatives, and is estimated at 9 months or more.
- **Regional Water Quality Control Board (RWQCB):** The USACE permit will require RWQCB approval of a Section 401 Water Quality Certification or Waiver. The RWQCB certification or waiver is approved following, or contingent upon, receipt of all federal permits, including the USACE authorization and agreement on wetland mitigation. Time required is a minimum of 3 months following USACE permit approval and agreement on mitigation. The project will also require a Notice of Construction and Storm Water Pollution Prevention Plan agreement with RWQCB, which is typically obtained during the construction phase.
- **California Department of Fish and Game (CDFG):** CDFG may require a 1602 Agreement for a Streambed Alteration Agreement. Their jurisdiction would apply to the banks of creek or waterway habitat affected by the project. Similar to RWQCB, they would require 3 months minimum following receipt of a complete application and agreement on mitigation. An Incidental Take Permit may be required from CDFG for impacts to California tiger salamander.
- **San Francisco Bay Conservation and Development Commission (BCDC).** Within the same limits of construction, the US 101 Auxiliary Lanes Project, Embarcadero Road to Route 85 (PM 52.17–48.97; EA 04-4A330K) US 101 was determined outside of BCDC jurisdiction. Assuming the Express Lanes project work also does not encroach into BCDC jurisdiction, a letter of concurrence will be requested. If work is found to encroach into BCDC jurisdiction, a permit application would be filed and BCDC would determine if it is processed as a Minor or Major project depending on the type of work and square footage of development within their jurisdictional area. BCDC issues their approval of a permit only after all other federal and state permits have been obtained, within 90 days of receipt and agreement that the application is complete.

## ***7. Level of Effort: Risks and Assumptions***

The project will require agency permit approvals. Inability to obtain timely approval of the permits would add time to the project schedule.

It is unlikely, but if the project involves more than 5 acres of impacts to Waters of the United States, *and* the environmental document for the project becomes an Environmental Impact Statement (EIS) instead of the anticipated Environmental Assessment, then additional regulatory agency coordination time is required. Under these circumstances, the April 2006 Memorandum



of Understanding (MOU) for the NEPA Integration process for Federal Aid Transportation projects may apply to this project. This MOU requires federal agency agreement at various stages of development of the environmental document, which could add at least 6 months or more to the environmental schedule.

Some of the proposed project actions have the potential to affect known and/or unknown cultural resources. These actions primarily include subsurface work such as trenching, installation of signs requiring deep foundations, bridge widening, and widening of the highway pavement cross section. Previous archaeological investigations, review of site and register listings, and Native American consultation that was conducted for previous projects along this corridor have identified significant sites that, if unavoidable, have the potential within some areas of the project to substantially delay the schedule or prevent some of the proposed subsurface ground disturbing work. At a minimum, it is anticipated that ESAs would be established for the purpose of avoiding previously recorded cultural resources sites in the APE. If a previously recorded cultural resources site cannot be avoided due to the current design requirements, it may be necessary to redesign the project to avoid those areas. Given the sensitive nature of the project corridor, the number of previously recorded cultural resources sites and the potential for unrecorded sites, it is likely that additional archaeological testing may be necessary. The testing and subsequent evaluation and documentation have the potential to extend the schedule.

The availability of adequate biological mitigation to address impacts to endangered species or wetlands could also affect the project schedule and cost. Offsetting mitigation will be required for impacts to wetlands and endangered species. Timely identification and purchase of biological mitigation credits or development of other mitigation options will be necessary.

## 8. PEAR Technical Summaries

The following summarizes the potential environmental issues, studies, and impacts for the conversion of HOV lanes to express lanes and the addition of a second express lane through the majority of the project corridor. If there is a difference between the Design Variations 1 and 2, it is noted, otherwise each build design would have the same effects. The No Build Alternative would avoid the following changes, but would also not provide the transportation benefits of the express lanes.

- 8.1 **Land Use:** Within the project limits, US 101 is adjacent to, or nearby, developed lands that are predominantly housing, commercial, and industry. Other uses include airport facilities, farmland, utility crossings, undeveloped, and open space/recreation (creeks and drainages, parkland, trails, and preserves).

For Design Variation 1, all permanent improvements will be within the US 101 median and shoulders, within the existing State right-of-way. The project would not permanently change any existing or planned land use designations. There is an unknown potential that temporary construction easements directly adjacent to the State right-of-way may be necessary where new soundwalls are proposed, but these would not affect the continued existing use of the parcels.

US 101 within the project limits passes alongside or through lands identified as parks and recreational trails, which may qualify as “Section 4(f)” properties as defined under the U.S. Department of Transportation Act (49 U.S.C. 303). Design Variation 1 would avoid permanent direct impacts to these land uses. Recreational trails that are crossed by US 101 bridges or overpasses within the project limits include the Stevens Creek Trail, Calabasas Creek Trail, San Tomas Aquino Creek Trail, Guadalupe River Trail, and the Coyote Creek Trail (which is crossed by US 101 in several locations). The Coyote Creek Golf Club is on both sides of US 101 north of Morgan Hill, and a golf club access path crosses beneath the freeway. This membership club may qualify as a Section 4(f) property as it is open to the public, and appears to operate under a County of Santa Clara Park and Recreation use permit. These potential effects may be considered “*de minimis*” depending on the nature and extent of any “use,” or impact. The Section 4(f) properties will be described, including their use and proximity to US 101, and how they are avoided with respect to direct and indirect effects. If necessary, a Section 4(f) *de minimis* evaluation will be performed.

For Design Variation 2, there will be acquisition of some existing lands adjacent to the freeway and ramps, and potentially some local roadways. This would affect residential and commercial lands, and other adjoining land uses that include parks, preserves, and recreational trails and facilities. The extent of acquisition would depend on the widening needed to accommodate standard design requirements. A Section 4(f) evaluation would be required.

- 8.2 **Growth:** The project will add a travel lane in each direction through the majority of the project corridor, which will attract users during peak traffic periods who are willing to pay a fee to bypass congestion. Because of the fee, it is expected that users will be primarily

existing highway travelers affected by congested conditions who are seeking a dependable travel option to reach a destination. It is not anticipated that the lane would be used in a substantial manner by drivers who are not already traveling on US 101. The potential for growth inducement will be discussed in a memorandum and in the environmental document.

- 8.3 Farmlands/Timberlands: Important farmland as mapped by the California Department of Conservation's Farmland Mapping and Monitoring Program is present along US 101 in the southern portion of the project corridor. Specifically, between the southern project limit at Dunne Avenue and at Burnett Avenue, and just north of Bailey Avenue, there are patches of orchards, field crops, and fallow fields. The farmland mapping also indicates areas of gravel pits within the southern project area.

Design Variation 1 will be within State right-of-way except for construction staging; impacts to farmlands, if any, will be minor and temporary. Design Variation 2 will involve expansion of the freeway, and has minimal risk of affecting adjacent farmlands, depending on the extent of necessary widening. Consultation with the Natural Resource Conservation Service (NRCS), initiated with completion and submittal of Form NRCS-CPA-106, would be necessary if the design evaluated in the environmental document will potentially affect farmlands. There are no timberlands adjacent to the project.

- 8.4 Community Impacts: Design Variation 1 is not expected to have any new adverse effects on the local community or the economy. Existing land uses have already developed surrounding US 101, but no right-of-way acquisition is anticipated. There are no planned changes of access to and from the freeway other than potential minor realignments of existing interchange ramps to accommodate the proposed lane additions and restriping. Design Variation 2 is expected to require new permanent right-of-way, which will involve at least partial property acquisitions, and potentially some full property acquisitions. There is a potential that the necessary right-of-way will require relocation of existing homes or businesses.

As appropriate, the environmental document will summarize land use acquisitions and impacts, effects to public and emergency services, community impacts, growth inducement, farmlands, and Section 4(f) discussions. The document will describe minority and/or low-income populations adjacent to the project corridor. The potential for disproportionate effects to these populations will be evaluated consistent with Environmental Justice (EJ) procedures. This will include direct effects related to temporary construction and permanent right-of-way impacts and factors influencing the EJ population's access to express lanes.

- 8.5 Visual/Aesthetics: The project will install new overhead signs and tolling equipment. US 101 is a highly urbanized corridor and is not a designated California scenic highway, although some segments are identified on the Caltrans Landscaped Freeways list. The existing median is either paved or bare earth within the entire project limits. For Design Variation 1, the addition of the new lanes in each direction will be accommodated where possible within the median, but some areas of the freeway edge of pavement and shoulders

will be expanded, and there may be some minor realignment of interchange ramps where necessary to accommodate the widening. Some existing landscaping along the outside of the freeway (but within the State right-of-way), and within interchange ramp areas, may require removal. For Design Variation 2, changes to the freeway will be more noticeable. Bridges and pavement will require some widening to the outside, the right-of-way will be expanded into private parcels, and these changes may require reconstruction of some existing soundwalls (closer to residents). A visual impact assessment will be completed evaluating typical new overhead signs and toll structures, and describing effects to existing freeway vegetation/landscaping.

- 8.6 Cultural Resources: Knowledge of the South Bay cultural resources context, and a preliminary review of information resources, indicates previously recorded and evaluated sites are present at and nearby the US 101 corridor. Previously recorded sites at or in the vicinity of US 101 include shell middens, subsurface human remains, and habitation materials. Some of the recorded sites within or near the right-of-way are listed or considered eligible for listing on the National Register of Historic Places. Compliance with the 2004 Programmatic Agreement for Section 106 of the NHPA and Native American consultation is a substantial concern to the project schedule.

An Area of Potential Effects (APE) map will be prepared for archaeology and architectural history to include areas of disturbance. Construction staging will require temporary construction easements adjacent to the existing State right-of-way, such as for installation of new soundwalls or access to the right-of-way. These easements will be included in the APE. In these instances, adjacent parcels to the right-of-way soundwall locations will be considered for indirect effects to historic properties, in consultation with Caltrans staff. Bridges across local streets that are crossed by the project may be widened to accommodate the double express lanes, and where this occurs construction access to these features will also be included in the APE. If cultural resource site boundaries extend beyond the State right-of-way, expansion of the APE will be considered to encompass the site, including if it extends into private land.

A records search will be conducted with the Northwest Information Center at Sonoma State University. Native American consultation will be conducted, and there is a potential for controversy because of the importance of at least one of the sites, based on previous project experience in this corridor. An Archaeological Survey Report (ASR) and Historic Properties Survey Report (HPSR) are the minimum documents required and will be prepared. Archaeological testing and reporting will likely be needed. The need for a Historic Resources Evaluation Report (HRER) will be considered if construction easements, soundwalls on the edge of right-of-way, or other project features could affect neighboring parcels/properties. Based on the records searches, initial Native American consultation, field surveys, and preliminary findings, avoidance measures will have to be developed and applied in the areas where known sites or sensitive materials may be present. Additional identification and evaluation studies may be necessary to ensure that the undertaking is carried out in a manner consistent with Caltrans responsibilities under the 2004 PA for compliance with Section 106 of the NHPA. Following the outcome of the

identification and evaluation phase, a Finding of Effect (FOE) document may be prepared and submitted to SHPO.

- 8.7 Hydrology and Floodplain: Portions of the project are within the 100-year floodplain. A Location Hydraulic Study, including a Floodplain Evaluation, will be required. For Design Variation 1, no work is proposed or anticipated within any of the creeks or drainage crossings. Design Variation 2 will require more extensive work to widen bridges, including at water crossings, and changes to flood elevations will be evaluated and addressed.
- 8.8 Water Quality and Storm Water Runoff: The project will involve increased pavement on US 101 to accommodate the proposed express lanes facility, which will change surface runoff of the existing setting. A Water Quality Study Report will be prepared to evaluate the potential for water quality impacts to existing surface water and/or groundwater resources and the potential for hydromodification within the project limits. Water quality treatment options will be considered and, as appropriate, included in the project.
- 8.9 Geology, Soils, Seismic and Topography: Active faults close to the US 101 Express Lanes Project alignment are the Hayward, Cascade, San Andreas, Calaveras, Monte Vista-Shannon, and Silver Creek. The Silver Creek fault crosses the project alignment at the Tully Road interchange and Interstate 880 interchange. The San Andreas, a major regional fault, passes within 4 to 5 miles of the project. A Preliminary Geotechnical Report will summarize regional and local geology and seismology with respect to the project location. It will describe soil conditions, and geologic and seismic hazards, and identify preliminary recommendations or measures appropriate to consider in the design phase of the project.
- 8.10 Paleontology: The project will involve pavement widening with limited subsurface effects along an already existing freeway, where original construction has disturbed at least the near-surface soils. However, proposed soundwall foundations, overhead signs, and tolling structures will require deeper excavation or disturbance. Installation of these project features has the potential to affect buried paleontological features, if present, within the freeway corridor. A Paleontological Identification Report and Paleontological Evaluation Report will be necessary, including literature review, review of geologic mapping for formations potentially containing paleontological resources, and recommendations for further actions, if needed, for areas identified with high sensitivity for disturbance of these resources. A Paleontological Mitigation Plan will be prepared if necessary to reduce potential impacts to paleontological resources.
- 8.11 Hazardous Waste/Materials: US 101 within the project limits adjoins or is near a number of industrial sites, primarily in the cities of Mountain View, Santa Clara, and San Jose. Known contaminated properties include gas stations, cleaning facilities, and semiconductor/"high tech" facilities. The former Moffett Field Naval Air Station is near the freeway in Mountain View. Some of these sites have generated known contamination plumes affecting groundwater and soils. Contaminants include volatile organic compounds, petroleum hydrocarbons, and soil lead contamination (the latter is likely contributed from freeway traffic emissions). The most southerly portion of the project route, from generally north of Bailey Avenue to north of Cochrane Road, is mapped by the California Department of Conservation as an "area more likely to contain natural occurrences of

asbestos” within the State. The mapping is based on the surface occurrence of ultramafic rock, which is known to include areas of serpentinite rock within which asbestos may occur. The potential for naturally occurring asbestos will be investigated. Presence of Aerially Deposited Lead contaminated soil is anticipated. An Initial Site Assessment (ISA) will be required, including a records search and review, site reconnaissance, and review of previous or on-going site remediation activities at nearby land uses.

- 8.12 Air Quality: The Bay Area is considered marginal non-attainment of the federal 8-hour ozone pollution standard, and particulate matter smaller than 2.5 microns (PM<sub>2.5</sub>). For state standards, the Bay Area is non-attainment for ozone, PM<sub>10</sub>, and PM<sub>2.5</sub>. Because the project will add a restricted express lane in each direction to US 101, an air quality study is required that evaluates these pollutants and addresses the project’s conformity with Clean Air Act requirements. This includes a carbon monoxide evaluation based on future traffic conditions with and without the project, and a PM<sub>2.5</sub> evaluation focusing on diesel emission changes. It is not anticipated that the project will measurably change truck volumes or speeds, the major contributor to diesel and PM<sub>2.5</sub> emissions. The project is included in the 2009 Santa Clara Valley Transportation Plan 2035 (VTP 2035) and in the Metropolitan Transportation Commission’s (MTC’s) Regional Transportation Plan (RTP) 2035 (MTC RTP Reference Number 230662). Consultation will be required with the Metropolitan Transportation Commission (MTC) Air Quality Task Force regarding acceptance of the results of the PM<sub>2.5</sub> emissions evaluation. A Mobile Source Air Toxics (MSAT) report is also required. Documentation of the previous steps must be submitted to FHWA for concurrence, to complete the project conformity review.
- 8.13 Noise and Vibration: The addition of a second express lane for the majority of the project corridor will qualify the project as a “Type I” undertaking, requiring a noise study and abatement evaluation. A noise study will be prepared in accordance with the 2011 Traffic Noise Analysis Protocol (TNAP). US 101 within the project limits is bordered by residential and other noise sensitive land uses, most but not all of which are protected by existing soundwalls. For Design Variation 2, some existing soundwalls may have to be relocated to accommodate the necessary widening. The noise study will evaluate existing and future noise levels, with and without the project, and evaluate noise abatement alternatives in accordance with the protocol. A Noise Abatement Decision Report will also be prepared to evaluate the feasibility and reasonableness of noise barriers under 2011 TNAP criteria.
- 8.14 Energy and Climate Change: Climate change will be addressed in the environmental document following current Caltrans guidance.
- 8.15 Biological Environment: Biological resources are present within the US 101 Express Lanes Project limits. Review of USFWS species occurrence information and the California Natural Diversity Data Base (CNDDB) indicate the potential presence of endangered or listed species. Protected species with the greatest potential for presence or habitat to occur are California red-legged frog, California tiger salamander and Bay checkerspot butterfly. Formal consultation will be required with USFWS. A Biological Assessment submittal to USFWS will be necessary, leading to a Biological Opinion for the project. A request for an

Incidental Take Permit for impacts to the California tiger salamander (*Ambystoma californiense*) will be submitted to California Fish and Game.

Consultation with NOAA Fisheries is not likely to be necessary for Design Option 1, but may be required for work within creeks affected by Design Option 2 that support anadromous fish (e.g., Stevens, Coyote, and Los Gatos Creeks, and Guadalupe River). An assessment of fish passage for the creeks potentially supporting anadromous fish will be included in the Natural Environment Study. Restoration of passage would be discussed if appropriate. The US 101 corridor crosses a number of creeks and drainages, and Wetlands and Other Waters of the United States will require delineation and a Wetlands Study Report. Many of the jurisdictional waters and wetlands can be avoided where improvements are limited to restriping on existing bridges, but extensions of culverts and work within minor drainages will require evaluation and avoidance to the extent practicable. A Natural Environment Study (NES) will be required that summarizes the findings of the BA and consultation, wetlands, invasive species presence/disturbance, and mitigation options.

- 8.16 Cumulative Impacts: As noted in Section 8.12, Air Quality, the project is listed in the current RTP. The MTC 2035 RTP included a cumulative impact analysis for all regional transportation projects in the Bay Area, including the proposed U.S. 101 Express Lanes Project. The following summarizes the cumulative impacts findings of the overall RTP, and whether the project could further contribute to any of these regional impacts:

<b>Cumulative Impact Potential</b>	
<b>2035 RTP Cumulative Impact Conclusions (Overall Bay Area Region)</b>	<b>Potential for U.S. 101 to Contribute to or Cause Significant Cumulative Impact?</b>
1. Increase Regional Vehicle Miles Traveled	No. Project will have none or minor change in traffic or travel
2. Contribute to exceedance of regional PM <sub>10</sub> and PM <sub>2.5</sub> Air Quality Standard	No. Project will have none, or minor change in diesel emissions
3. Conversion of Bay Area prime agricultural land	No. The project does not affect agricultural land
4. Contribute to regional greenhouse gas emissions	No. Project will have none or minor change in overall vehicle emissions
5. Contribute to sea level rise	No
6. Exposure of people/community to geologic hazards	No
7. Contribution to degradation of water quality	Potential contribution that will require mitigation
8. Contribute to regional habitat impacts	Potential contribution that will require mitigation
9. Contribute to cumulative visual impacts	No. Project will add some new signage but corridor is already a major developed highway.

The Governor's Office of Planning and Research CEQAnet database was reviewed to identify non-transportation projects in the vicinity of the proposed project limits. The preliminary review indicated a range of creek, trail, and drainage improvements that cross US 101, nearby proposed commercial and solar energy developments, and Santa Clara Valley Water District dam maintenance program projects that would be farther away, but within, drainages that cross US 101. None of these projects appear to have the potential to contribute substantial cumulative impacts to those of the US 101 Express Lanes Project, but a more detailed evaluation will be prepared.

- 8.17 Context Sensitive Solutions: Context sensitive solutions are those that meet transportation goals in harmony with community goals and the natural environment. The fundamental objective of express lanes is to utilize the existing freeway corridor and HOV lane peak hour travel capacity. The design helps meet the transportation goal to provide travel options for commuters, utilizing the existing freeway facility. Widening will be along the existing freeway and within the median, which minimizes adverse impacts to the natural environment. In addition, changes to the visual appearance of the highway are minimal except for additional overhead signage, tolling equipment, lighting, and lane restriping, which will be consistent with the existing freeway facility.



## **9. Summary Statement for PSR or PSR-PDS**

The environmental document is anticipated to be a NEPA Environmental Assessment and CEQA Initial Study, leading to approval of a Finding of No Significant Impact and Negative Declaration or Mitigated Negative Declaration. It will evaluate two alternatives: the Build Alternative and the No Build Alternative. The No Build Alternative assumes no modifications would be made to the US 101 corridor and existing HOV lanes. The Build Alternative would convert the existing HOV lanes into express lanes, and add an express lane. The following are the key environmental issues, and the studies that will be required.

- **Land Use:** Land uses alongside the project corridor are dominated by housing, commercial and industrial uses. Other uses include airport facilities, farmland, utility crossings, undeveloped, and open space recreation (primarily trails). Design Variation 1 will not require any permanent parcel acquisitions and will be constructed within existing state right-of-way, with the exception of potential temporary construction easements for installation of concrete barriers and retaining walls. This will be addressed in the environmental document. If recreational trails that cross underneath US 101 require temporary closure during construction, a Section 4(f) assessment (*de minimus* evaluation) may be required. Design Variation 2, consisting of a widened freeway that meets the minimum cross sectional standard requirements, would have right-of-way and land use impacts.
- **Growth:** The project is limited to a conversion or completion of existing HOV lanes to express lane use. It will provide operational benefits to the corridor and is not considered growth inducing. This will be addressed in the environmental document.
- **Farmlands/Timberlands:** Existing farmlands are along the southern extent of the project corridor but are outside of the existing state right-of-way. These farmlands would not be affected by Design Variation 1, and would only be impacted by Design Variation 2 if it requires right-of-way at the farmland parcels. No timberlands are present.
- **Community Impacts:** For Design Variation 1, there will be no relocations or property acquisitions. No adverse community impacts are anticipated. Design Variation 2 will require property acquisitions.
- **Visual/Aesthetics:** Changes to the visual environment will be limited to new overhead signs and tolling equipment within the US 101 corridor. US 101 is not a California scenic highway, but segments are identified on the Caltrans Landscaped Freeways list. The existing median is entirely paved or bare earth. A visual impact assessment will be prepared.
- **Cultural Resources:** Multiple previously recorded archaeological sites are known to occur in the State right-of-way within the project limits. There is also a potential that previously unrecorded buried cultural resources may be present within the project limits. Some portions of the right-of-way have been previously surveyed. It is anticipated that records searches, Native American consultation, archaeological survey, and preparation of an Archaeological Survey Report and Historic Properties Survey Report will be required, at a minimum. A Historic Resources Evaluation Report will be prepared if necessary. Consultation with the State Historic Preservation Officer (SHPO) is necessary.

- Hydrology and Floodplain: Portions of the project are within the 100-year floodplain. The project will require increased paved surface area to accommodate the express lanes. A Location Hydraulic Study and Floodplains Evaluation will be required.
- Water Quality and Storm Water Runoff: The additional surface pavement and runoff will require a Water Quality Study Report and a Storm Water Data Report.
- Geology, Soils, Seismic, and Topography: US 101 within the limits of the project is in the vicinity of a number of regional and major faults, and is crossed by the Silver Creek fault near the Tully Road interchange. A Preliminary Geotechnical Report will be required.
- Paleontology: Most of the project involves widening and restriping, but some features will require limited subsurface excavation or disturbance, primarily soundwall foundations, overhead signs, and tolling structures. A Paleontological Identification Report and Paleontological Evaluation Report will be prepared, which will evaluate the need for a subsequent Paleontological Mitigation Plan.
- Hazardous Waste/Materials: There are industrial sites and known contamination along US 101 within the project limits, primarily within Mountain View, Santa Clara, and San Jose. An Initial Site Assessment will be required.
- Air Quality: An air quality study is required, including evaluation of Mobile Source Air Toxics, PM<sub>2.5</sub> assessment, and consultation with the Metropolitan Transportation Commission (MTC) Air Quality Task Force.
- Noise and Vibration: The project's additional lanes define it as a Type I undertaking, requiring a noise assessment that evaluates noise abatement barriers. A noise study report and Noise Abatement Decision Report will be required.
- Energy and Climate Change: The environmental document will need to address Climate change consistent with current Caltrans guidance.
- Biological Environment: A species list review and preliminary studies indicate the potential presence of protected species, including the California red-legged frog, California tiger salamander, and Bay checkerspot butterfly. Formal consultation with U.S. Fish and Wildlife Service (USFWS) is necessary, including submittal of a Biological Assessment, concluding with USFWS issuing a Biological Opinion. Some creeks crossed by the alignment support anadromous fish; consultation with NOAA Fisheries would be necessary if work for one of the Design Variations is within one of these creeks. An assessment of fish passage and potential passage restoration for the creeks supporting anadromous fish will be included in the Natural Environment Study. Waters and wetlands are present along the corridor, requiring a wetlands study. A Natural Environment Study is required.

Special considerations for environmental review include the potential presence of endangered species and their habitat which require federal and state consultation, concurrence on findings, and mitigation. Drainage and water crossings may require seasonal work restrictions if work within the channels or habitat is necessary.

The project will require environmental commitments, including water quality minimization and treatment of increased runoff from new paved surfaces. Special handling of contaminated soils or water may be required. Soundwalls may be required at some land uses that are exposed to excessive freeway traffic noise.

Agency agreements necessary during the environmental document preparation and review phase will include formal consultation and a Biological Opinion from the USFWS (and potentially NOAA Fisheries), approval by FHWA of the project's transportation conformity with requirements of the Federal Clean Air Act, consultation and concurrence from the MTC Air Quality Task Force, and agreement from the SHPO.

Regulatory permits, following completion of the environmental document phase, will be required from the U.S. Army Corps of Engineers (USACE) for a Preliminary Jurisdictional Determination of wetlands and other waters of the United States, and a Nationwide or Individual Permit depending on impacts to jurisdictional resources. The Regional Water Quality Control Board must issue a Section 401 Water Quality Certification or Waiver. Construction will require a Notice of Construction and Storm Water Pollution Prevention Plan agreement. Consultation and a letter of concurrence may be required from the San Francisco Bay Conservation and Development Commission (BCDC) verifying that work is outside of their jurisdiction. A Streambed Alteration Agreement (Fish and Game Code 1602) may be required from the California Department of Fish and Game for work within stream channels or banks.

## **10. Disclaimer**

This Preliminary Environmental Analysis Report (PEAR) provides information to support programming of the proposed project. It is not an environmental determination or document. Preliminary analysis and determinations are based on the project description provided in the PSR-PDS prepared for the project. The conclusions in the PEAR are approximate and are based on cursory analyses of probable effects. A reevaluation of the PEAR will be needed for changes in project scope or alternatives, or in environmental laws, regulations, or guidelines.

## **11. List of Preparers**

Cultural Resources specialist Jeff Zimmerman/Amy Havens (URS)	Date: July, 2012
Biologist Jeff Zimmerman/Nicole Rucker (URS)	Date: July, 2012
Community Impacts specialist Jeff Zimmerman/Amy Havens (URS)	Date: July, 2012
Noise and Vibration specialist Jeff Zimmerman (URS)	Date: July, 2012
Air Quality specialist Jeff Zimmerman (URS)	Date: July, 2012
Paleontology specialist/liaison Jeff Zimmerman (URS)	Date: July, 2012
Water Quality specialist Jeff Zimmerman (URS)/Analette Ochoa (Wreco)	Date: July, 2012
Hydrology and Floodplain specialist Jeff Zimmerman (URS)/Analette Ochoa (Wreco)	Date: July, 2012
Hazardous Waste/Materials specialist	Date: July, 2012

Jeff Zimmerman/Cliff Nale (URS)	
Visual/Aesthetics specialist Jeff Zimmerman/Lynn McIntyre (URS)	Date: July, 2012
Energy and Climate Change specialist Jeff Zimmerman (URS)	Date: July, 2012
Other:	Date:
PEAR Preparer (Name and Title) Jeff Zimmerman, Project Manager (URS)	Date: July, 2012

## ***12. Review and Approval***

I confirm that environmental cost, scope, and schedule have been satisfactorily completed and that the PEAR meets all Caltrans requirements. Also, the project is scoped as a routine EA, and concurrence will be sought by the HQ DEA Coordinator in the Class of Action.

\_\_\_\_\_  
Environmental Branch Chief

Date: \_\_\_\_\_

\_\_\_\_\_  
Project Manager

Date: \_\_\_\_\_

## **REQUIRED ATTACHMENTS:**

**Attachment A: PEAR Environmental Studies Checklist**

**Attachment B: Estimated Resources by WBS Code**

**Attachment A**  
**PEAR Environmental Studies Checklist**

## Attachment A: PEAR Environmental Studies Checklist

Rev. 11/08

Environmental Studies for PA&ED Checklist					
	Not anticipated	Memo to file	Report required	Risk* L M H	Comments
Land Use	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	L	
Growth	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	L	
Farmlands/Timberlands	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	L	
Community Impacts	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	L	
Community Character and Cohesion	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	L	
Relocations	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	L	
Environmental Justice	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	L	
Utilities/Emergency Services	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	L	
Visual/Aesthetics	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	L	
Cultural Resources:	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	L	
Archaeological Survey Report	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	M	
Historic Resources Evaluation Report	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	L	
Historic Property Survey Report	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	M	
Historic Resource Compliance Report	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	L	
Section 106 / PRC 5024 & 5024.5	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	L	
Native American Coordination	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	L	
Finding of Effect	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	M	
Data Recovery Plan	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	M	
Memorandum of Agreement	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	M	
Other:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	L	
Hydrology and Floodplain	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	L	
Water Quality and Stormwater Runoff	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	L	
Geology, Soils, Seismic and Topography	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	L	
Paleontology	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	L	
PER	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	L	
PMP	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	L	
Hazardous Waste/Materials:	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	L	
ISA (Additional)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	M	
PSI	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	M	
Other:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	L	
Air Quality	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	L	
Noise and Vibration	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	M	
Energy and Climate Change	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	L	
Biological Environment	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	L	
Natural Environment Study	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	L	
Section 7:	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	M	
Formal	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	M	
Informal	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	L	
No effect	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	L	
Section 10	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	L	
USFWS Consultation	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	M	
NMFS Consultation	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	L	
Species of Concern (CNPS, USFS, BLM, S, F)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	M	

Environmental Studies for PA&ED Checklist					
	Not anticipated	Memo to file	Report required	Risk* L M H	Comments
Wetlands & Other Waters/Delineation	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<u>M</u>	
404(b)(1) Alternatives Analysis	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>L</u>	
Invasive Species	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<u>L</u>	
Wild & Scenic River Consistency	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>L</u>	
Coastal Management Plan	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>L</u>	
HMMP	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>L</u>	
DFG Consistency Determination	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<u>L</u>	
2081	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<u>M</u>	
Other: Fish Psg	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<u>L</u>	
Cumulative Impacts	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<u>L</u>	
Context Sensitive Solutions	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<u>L</u>	
Section 4(f) Evaluation	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<u>L</u>	
<b>Permits:</b>					
401 Certification Coordination	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<u>M</u>	
404 Permit Coordination, IP, NWP, or LOP	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<u>M</u>	
1602 Agreement Coordination	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<u>M</u>	
Local Coastal Development Permit Coordination	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>L</u>	
State Coastal Development Permit Coordination	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>L</u>	
NPDES Coordination	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<u>M</u>	
US Coast Guard (Section 10)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>L</u>	
TRPA	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>L</u>	
BCDC	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<u>M</u>	

# **Attachment B**

## **Estimated Resources by WBS Code**



# ATTACHMENT B - Resources by WBS Code

EA:	Assigned Unit	Senior	Coord	Biology	Cultural	Haz Waste	Socio-Economic	Storm Water	Noise/Air	Paleo	Visual	Sup Svcs	Total	Begin Date	End Date	Duration (days)
<b>Description:</b>																
<b>Project Management</b>																
100.05.05 – Project Init. & Plng.													0			0
100.05.10 – PID Cmnt Exec. & Crl.													0			0
100.05.15 – PID Cmnt Closeout													0			0
100.10.05 – PA&ED Cmnt Init. & Plng.													0			0
100.10.10 – PA&ED Cmnt Exec. & Crl.													0			0
100.10.15 – PA&ED Cmnt Closeout													0			0
100.10.20 – Project Shelving (PA&ED)													0			0
100.10.25 – Project Unshelving (PA&ED)													0			0
100.10.30 – Updd Admtv Rec during PA&ED													0			0
100.10.35 – Execd Coop Agre for PA&ED Process													0			0
100.15.05 – PS&E Cmnt Init. & Plng.													0			0
100.15.10 – PS&E Cmnt Exec. & Crl.													0			0
100.15.15 – PS&E Cmnt Closeout													0			0
100.15.20 – Project Shelving (PS&E)													0			0
100.15.25 – Project Unshelving (PS&E)													0			0
100.15.30 – Updd Admtv Rec during PS&E													0			0
100.15.35 – Execd Coop Agre for PS&E Process													0			0
100.20.05 – Const. Cmnt Init. & Plng.													0			0
100.20.10 – Const. Cmnt Exec. & Crl.													0			0
100.20.15 – Const. Cmnt Closeout													0			0
100.20.20 – Project Shelving (Construction)													0			0
100.20.25 – Project Unshelving (Construction)													0			0
100.20.30 – Updd Admtv Rec during Const													0			0
100.20.35 – Execd Coop Agre for Const Process													0			0
100.25.05 – R/W Cmnt Init. & Plng.													0			0
100.25.10 – R/W Cmnt Exec. & Crl.													0			0
100.25.15 – R/W Cmnt Closeout													0			0
100.25.20 – Project Shelving (Right of Way)													0			0
100.25.25 – Project Unshelving (Right of Way)													0			0
100.25.30 – Updd Admtv Rec during R/W													0			0
100.25.35 – Execd Coop Agre for R/W Process													0			0
100.25.50 – Execd Coop Agre for R/W Rlmnt													0			0
Total Project Management		0	0	0	0	0	0	0	0	0	0	0	0			
<b>Perform Preliminary Engineering Studies and Prepare Draft Project Report</b>																
160.05.05 – Approval PID Review													0			0
160.05.10 – Geotechnical Information Review													0			0
160.05.20 – Traffic Data & Forecasts Review													0			0
160.05.30 – Project Scope Review													0			0
160.10.20 – Value Analysis													0			0
160.10.25 – Hydraulics/Hydro Study													0			0
160.10.30 – Hwy Planting Des Concepts													0			0
160.15.20 – Draft Project Report													0			0
160.15.25 – Draft PR Circ. Rev & App													0			0
160.30.05 – Maps for ESR													0			0











Permits, Agreements, and Route Adoptions during PS&E Cmpnt													
Assigned Unit	Senior	Coord	Biology	Cultural	Haz Waste	Socio-Economic	Storm Water	Noise/Air	Paleo	Sup Svcs	Total	Begin Date	End Date (days)
<b>Right of Way Interests</b>													
225.55.20 - Right of Way Clearance													
Total Right of Way Interests	0	0	0	0	0	0	0	0	0	0	0		0
<b>Prepare Draft PS&amp;E</b>													
230.05.45 - Noise Barrier Plans													
230.10.05 - Hwy Planting Plans													
230.10.15 - Plant List													
230.35.10 - Hwy Planting Specs													
230.35.35 - Water Pollution Ctrl Specs													
230.35.40 - Erosion Control Specs													
230.60 - Updated Proj Info for PS&E Package													
230.60.05 - Updated Storm Water Data Report													
230.60.10 - Other Reviews/Updates Proj Info													
230.90 - NEPA Delegation													
Total Prepare Draft PS&E	0	0	0	0	0	0	0	0	0	0	0		0
<b>Mitigate Environmental Impacts and Clean-up Hazardous Waste</b>													
235.05.05 - Hist Structures Mitig													
235.05.10 - Archy & Cult Mitigation													
235.05.15 - Biological Mitigation													
235.05.20 - Env Mitigation R/W work													
235.05.25 - Paleontology Mitigation													
235.05.99 - Other Env Mitigation Products													
235.10.10 - Haz Waste Sites Survey													
235.10.15 - Detailed HW Sites Investigation													
235.15 - HW Management Plan													
235.20 - HW PS&E													
235.25 - HW Clean-up													
235.30 - Certification of Sufficiency (HW)													
235.35 - Long Term Mitigation Monitoring													
235.40 - Updated ECR													



04 - SC1 - 101 - PM 16.00/52.55  
04-SC1-85 – PM 23.0/24.1  
EA #04-2G710K, 0400001163

**ATTACHMENT G**  
**Transportation Planning Scoping Information Sheet**

## ARTICLE 4

# Transportation Planning Scoping Information Sheet

Transportation planning provides the framework for selecting, scoping and constructing projects on the State Highway System. The intent of federal and State laws, policies and regulations are to fund and construct projects that are consistent with State, regional, and community planning decisions. Transportation planning processes are iterative; therefore, project teams rely on the Transportation Planner to provide the team with transportation planning information that affects the scope, cost, and schedule of the proposed project.

The Transportation Planner has the expertise to compile, analyze and present pre-planning efforts and decisions that must be considered when scoping the project. The Transportation Planner must identify community concerns and ensure they are adequately addressed early enough in the project development process to facilitate efficient project delivery. This information enables the team to properly define and scope the project in concert with the affected community and the alternatives previously considered.

It is important to use resources to gather and compile information that will:

- Assist project development teams in developing projects that are consistent with the purpose and need identified in the long-range transportation planning process for the statewide integrated multimodal transportation system.
- Ensure that the project development teams consider the following:
  - Consistent with planning concepts and statewide goals
  - Transportation system throughput and efficiencies for all modes.
  - Community values, context sensitive solutions, and complete streets.
  - Consistency with State, regional and community planning decisions.
- Improve cost estimating.
- Reduce scope creep.

Transportation Planners can use the planning scoping information sheet as a communication document to present the planning level purpose and need to the Project Development Team (PDT) early in the project initiation phase. The PDT should use the planning scoping information sheet to verify that the project remains consistent with the planning level purpose and need and is consistent with planning concepts, statewide goals, and planning decisions. Guidance to assist the Transportation Planner in completing the Information Sheet is located at: [http://www.dot.ca.gov/hq/tpp/offices/oppc/project\\_scoping.html](http://www.dot.ca.gov/hq/tpp/offices/oppc/project_scoping.html).

The majority of the data requested for the information sheet is compiled at two separate time periods. The initial information is collected by the Transportation Planning PDT representative at the start of Project Initiation Document (PID) development to ensure appropriate stakeholders are included in the process and all pre-planning efforts and commitments are reviewed before any project decisions are made. The remaining information will be addressed during the project development process. Explanations of how the requirements were met will need to be finalized by the end of the PID. Initial information required for each section of the planning information sheet beginning on page two is identified as **INITIAL PID INFORMATION** and the concluding information is identified as **FINAL PID INFORMATION**.



# ARTICLE 4 Transportation Planning Scoping Information Sheet

## PROJECT INFORMATION

District	County	Route	Post Miles	Project ID No/ Expenditure Authorization No.
04	SCI	101,85	16.0/52.55,22.0/23.1	2G710K
<b>Project Name and Description : US 101 Express Lanes Project</b> Dunne Avenue in Morgan Hill to Santa Clara/San Mateo County Line in Palo Alto				

### Prepared by:

District Information Sheet Point of Contact*:	Name:	Functional Unit:	
--	-------	---------------------	--

\* The District Information Sheet Point of Contact is responsible for completing Project Information, PDT Team and Stakeholder Information, and coordinating the completion of project-related information with the Transportation Planning Stakeholders. Upon completion, provides the Transportation Planning PDT Representative and Project Manager with a copy of the Information Sheet.

Project Development Team (PDT) Information		
Title	Name	Phone Number
Project Manager	Nick Saleh	510-286-6355
Project Engineer	Hassan Nikzad	510-715-9619
Transportation Planning PDT Representative**	Caroline Pineda	510-622-0773

Transportation Planning Stakeholder Information		
Title	Name	Phone Number
Regional Planner		
System Planner		
Local Development- Intergovernmental Review (LD-IGR) Planner		
Community Planner		
Goods Movement Planner		
Transit Planner		
Bicycle and Pedestrian Coordinator		
Park and Ride Coordinator		
Native American Liaison		
Other Coordinators:		

**Project Purpose and Need\*\*** – Utilize available capacity in the US 101 HOV lanes, manage traffic congestion in the most congested HOV segments of the freeway.

\*\*\* The Transportation Planning PDT Representative is responsible for providing the PDT with the system-wide and corridor level deficiencies identified by Transportation Planning. The PDT uses the information provided by Transportation Planning to develop the purpose and need with contributions from other Caltrans functional units and external stakeholders at the initiation of the PID and is refined throughout the PID process. As the project moves past the project initiation stage and more data becomes available, the purpose and need is refined. For additional information on purpose and need see: [www.dot.ca.gov/hq/env/emo/purpose\\_need.htm](http://www.dot.ca.gov/hq/env/emo/purpose_need.htm)

### 1. Project Funding:

a	List all known and potential funding sources and percent splits: (ie. State Transportation Improvement Program (STIP)/State Highway Operations and Protection Program (SHOPP)/Transportation Enhancement (TE)/Environmental Enhancement and Mitigation (EEM)/Safe Routes to School (SR2S)/etc.).
	PID and PA/ED Phases are being funded through VTA local funds. No funding identified for design and construction
b	Is this a measure project? Yes___/No <u>X</u> . If yes, name and describe the measure.
	N/A

### 2. Regional Planning:

A	Name of and contact information for Metropolitan Planning Organization (MPO) or Regional Transportation Planning Agency (RTPA).
	Metropolitan Transportation Commission (MTC) 101 8 <sup>th</sup> Street Oakland, CA 94607 (510) 817-5818
B	Name of and contact information for local jurisdiction (City or County)
	Lam Trinh, Project Manager Santa Clara Valley Transportation Authority (VTA) 3331 North First Street San Jose, CA 95134
C	Provide the page number and project description as identified in the Regional Transportation Plan (RTP) and the date of adoption, or provide an explanation if not in RTP.
	RTP 230662 – US 101 Express Lanes
D	Provide nexus between the RTP objectives and the project to establish the basis for the project purpose and need.
	Convert HOV lanes to express lanes in order to utilize available capacity in the HOV lanes.
E	Is the project located in an area susceptible to sea-level rise?
	No
F	Name of Air Quality Management District (AQMD)
	Bay Area Air Quality Management District (BAAQMD)
G	If the project is located in a federal non-attainment or attainment-maintenance area is the project:
	• Regionally Significant? (per 40 Code of Federal Regulations (CFR) 93.101) Y___/N___
	• Exempt from conformity? (per 40 CFR 93.126 and 93.128) Y___/N <u>X</u>
	• Exempt from regional analysis? (per 40 CFR 93.127) Y___/N <u>X</u>
	• Not exempt from conformity (must meet all requirements)? Y <u>X</u> /N___

### 3. Native American Consultation and Coordination:

a	If project is within or near an Indian Reservation or Rancheria? If so, provide the name of Tribe.
	Yes, Ynigo Shell mound site (CA-SCL-12/H)
b	Has/have the Tribal Government(s) been consulted? Y___/N_X_. If no, why not?
	Project avoids impact to the site
c	If the project requires Caltrans to use right-of-way on trust or allotted lands, this information needs to be included as soon as possible as a key topic in the consultation with the Tribe(s). Has the Tribe been consulted on this topic? Y___/N_X_. If no, why not?
	N/A
d	Has the Bureau of Indian Affairs (BIA) been notified? Y___/N_X_
	N/A
e	Have all applicable Tribal laws, ordinances and regulations [Tribal Employment Rights Ordinances (TERO), etc.] been reviewed for required contract language and coordination?
	N/A
f	If the Tribe has a TERO, is there a related Memorandum of Understanding between the District and the Tribe?
	N/A
g	Has the area surrounding the project been checked for prehistoric, archeological, cultural, spiritual, or ceremonial sites, or areas of potentially high sensitivity? If such areas exist, has the Tribe, Native American Heritage Commission or other applicable persons or entities been consulted?
	The project is evaluating the cultural resources in a technical study. The area at the US 101/SR 237 interchange has been identified as having high sensitivity for cultural resources. The project plans to avoid excavation in the high sensitivity area.
h	If a Native American monitor is required for this project, will this cost be reflected in cost estimates?
	N/A
i	In the event of project redesign, will the changes impact a Native American community as described above in d, e, or h?
	N/A

### 4. System Planning:

a	Is the project consistent with the DSMP? Y___/N_X_. If yes document approval date. If no, explain.
	Currently under development by Caltrans, District 4
b	Is the project identified in the TSDP? Y___/N_X_? If yes, document approval date____. If no, explain.
	Currently under development by Caltrans, District 4.
c	Is the project identified in the TCR/RCR or CSMP? Y___/N_X_. If yes, document approval date____. If no, explain. Is the project consistent with the future route concept? Y___/N_X_. If no, explain.
	Currently under development by Caltrans, District 4.
d	Provide the Concept Level of Service (LOS) through project area.
	Express Lanes are required to maintain an LOS C or D by the authorizing legislation
e	Provide the Concept Facility – include the number of lanes. Does the Concept Facility include High Occupancy Vehicle lanes? Y_X_/N___.
f	Provide the Ultimate Transportation Corridor (UTC) – include the number of lanes. Does the UTC include High Occupancy Vehicle Lanes? Y_X_/N___.

g	Describe the physical characteristics of the corridor through the project area (i.e. flat, rolling or mountainous terrain...).
	Flat
h	Is the highway in an urban or rural area? Urban <u>X</u> /Rural <u>  </u> . Provide Functional Classification.
	FC Code 2 (Other Freeways or Expressways)
i	Is facility a freeway, expressway or conventional highway?
	Freeway
j	Provide Route Designations: (i.e. Interregional Transportation Strategic Plan (ITSP) High Emphasis or Focus Route, Surface Transportation Assistance Act (STAA) Route, Scenic Route...).
	<ul style="list-style-type: none"> <li>• part of the National Highway System (NHS),</li> <li>• is a Strategic Highway Network (STRAHNET) route</li> <li>• is part of the State Highway Extra Legal Load (SHELL) route system,</li> <li>• Classified as “High Emphasis” and “Focus Route,” on Caltrans’ Interregional Transportation Plan (ITP)</li> <li>• Is a National Truck Network route and a Surface Transportation Assistance Act (STAA) route</li> </ul>
k	Describe the land uses adjacent to project limits (i.e. agricultural, industrial...).
	Agricultural, residential, industrial
l	Describe any park and ride facility needs identified in the TCR/CSMP, local plans, and RTP.
	None identified.
m	Describe the Forecasted 10 and 20-year Vehicle Miles Traveled (VMT), Annual Average Daily Traffic (AADT), and Peak Hour truck data in the TCR. Include the source and year of Forecast, and names and types of traffic and travel demand analysis tools used.
	TCR not available at this time.
n	Has analysis on Daily Vehicle Hours of Delay (DVHD) from the Highway Congestion Monitoring Program (HICOMP) been completed and included? Y <u>X</u> /N <u>  </u> .
	HICOMP report is available online.

### 5. Local Development – Intergovernmental Review (LD-IGR) :

List LD-IGR projects that may directly or indirectly impact the proposed Caltrans project or that the proposed Caltrans project may impact. ( Attach additional project information if needed.)

LD-IGR Project Information		Project
a	County-Route-Postmile & Distance to Development.	
b	Development name, type, and size.	
c	Local agency and/or private sponsor, and contact information.	
d	California Environmental Quality Act (CEQA) status and Implementation Date.	
e	If project includes federal funding, National Environmental Policy Act (NEPA) status.	
f	All vehicular and non-vehicular unmitigated impacts and planned mitigation measures	

	including Transportation Demand Management (TDM) and Transportation System Management (TSM) that would affect Caltrans facilities.	
g	Approved mitigation measures and implementing party.	
h	Value of constructed mitigation and/or amount of funds provided.	
i	Encroachment Permit, Transportation Permit, Traffic Management Plan, or California Transportation Commission (CTC) Access approvals needed.	
j	Describe relationship to Regional Blueprint, General Plans, or County Congestion Management Plans.	
k	Inclusion in a Regional Transportation Plan Sustainable Community Strategy or Alternative Planning Strategy?	
l	Regional or local mitigation fee program in place?	

## 6. Community Planning:

<b>INITIAL PID INFORMATION</b>	
a	Has lead agency staff worked with any neighborhood/community groups in the area of the proposed improvements? Y <u>X</u> /N <u>  </u> . If yes, summarize the process and its results including any commitments made to the community. If no, why not?
	Communities along the corridor have been supportive of freeway improvements that reduce the current congestion. Notifications were sent to property owners, Ads were placed in local newspapers, and project information were posted on project website.
b	Are any active/completed/proposed Environmental Justice (EJ) or Community-Based Transportation (CBTP) Planning Grants in the project area? Y <u>  </u> /N <u>X</u> <u>  </u> . If yes, summarize the project, its location, and whether/how it may interact with the proposed project.
	N/A
c	Describe any community participation plans for this PID including how recommendations will be incorporated and/or addressed. Has a context sensitive solutions (CSS) approach been applied? Y <u>  </u> /N <u>X</u> <u>  </u>
	The project has not yet developed any community participation plans for the project.
<b>FINAL PID INFORMATION</b>	
d	How will the proposed transportation improvements impact the local community? Is the project likely to create or exacerbate existing environmental or other issues, including public health and safety, air quality, water quality, noise, environmental justice or social equity? Y <u>X</u> <u>  </u> /N <u>  </u> . Describe issues, concerns, and recommendations (from sources including neighborhood/community groups) and what measures will be taken to reduce existing or potential negative effects.
	Air Quality, water quality, noise, and other environmental studies will be prepared, impacts will be identified, and mitigation measures will be incorporated into the project design where feasible.
e	Does this highway serve as a main street? Y <u>  </u> /N <u>X</u> <u>  </u> . If yes, what main street functions and features need to be protected or preserved?
	N/A

## 7. Freight Planning:

<b>INITIAL PID INFORMATION</b>	
a	Identify all modal and intermodal facilities that may affect or be affected by the project.

	The project has no impact on rail or air transportation modes. Bus service using the existing HOV lane will continue to use the express lanes under the “with project” condition. Due to the access control (buffer separation), the project may require that some bus lines modify their routes.
	<b>FINAL PID INFORMATION</b>
b	Describe how the design of this project could facilitate or impede Goods Movement and relieve choke points both locally and statewide through grade separations, lane separations, or other measures (e.g., special features to accommodate truck traffic and at-grade railroad crossings). By allowing some of the vehicles to pay a toll and shift from the mixed flow lanes to the express lanes, operations in the mixed flow lanes can improve and therefore provide an enhancement to the movement of goods. In addition, smaller trucks that are allowed to use the HOV lane in the existing conditions will continue to be allowed in the express lane and will benefit from the improved operations due to the addition of a second express lane
c	Describe how the project integrates and interconnects with other modes (rail, maritime, air, etc.). Do possibilities exist for an intermodal facility or other features to improve long-distance hauling, farm-to-market transportation and/or accessibility between warehouses, storage facilities, and terminals? No possibilities exist for an intermodal facility. However, the project provides enhanced operations for transit operators who are allowed in the carpool lane because the project adds a second lane and controls the usage of the double express lanes through dynamic pricing schemes that guarantees an LOS C or D in the express lanes facility
d	Is the project located in a high priority goods movement area, included in the Goods Movement Action Plan (GMAP) or on a Global Gateways Development Program (GGDP) route? Y <u>X</u> /N __. If yes, describe. US 101 in Santa Clara County is identified in the Goods Movement Action Plan (GMAP) as a major international trade highway route. The Global Gateways Development Program identifies US 101 from Salinas to San Jose as having high truck volumes.
e	Is the project on a current and/or projected high truck volume route [e.g., Average Annual Daily Truck Traffic (AADTT) of 5 axle trucks is greater than 3000]? Yes <u>X</u> /N __. If yes, describe how the project addresses this demand. The project does not change the existing capacity for truck traffic and therefore does not negatively impact their operations.
f	If the project is located near an airport, seaport, or railroad depot, describe how circulation (including truck parking) needs are addressed. N/A
g	Describe any other freight issues. N/A

**8. Transit (bus, light rail, commuter rail, intercity rail, high speed rail):**

	<b>INITIAL PID INFORMATION</b>
a	List all local transit providers that operate within the corridor. VTA express bus, Monterey Salinas Transit Line 55 Monterey to San Jose Express
b	Have transit agencies been contacted for possible project coordination? Y __ /N <u>X</u> . If no, why not? Coordination with Monterey Salinas Transit has not yet occurred.
c	Describe existing transit services and transit features (bus stops, train crossings, and transit lines) within the corridor. N/A
d	Describe transit facility needs identified in short- and long-range transit plans and RTP. Describe how

	these future plans affect the corridor.
	N/A
	<b>FINAL PID INFORMATION</b>
e	Describe how the proposed project integrates transit and addresses impacts to transit services and transit facilities. The proposed express lanes provide an opportunity for the VTA express bus program to utilize the facility to make the system more efficient. In addition, revenues from the express lanes operations will be invested in the corridor including investment in transit improvements, as mandated by the authorizing legislation
f	Have transit alternatives and improvement features been considered in this project? Y__/N_X_ If yes, describe. If no, why not? N/A

#### 9. Bicycle:

	<b>INITIAL PID INFORMATION</b>
a	Does the facility provide for bicyclist safety and mobility needs? If no, please explain. The existing bicyclist safety and mobility features will remain.
b	Are any improvements for bicyclist safety and mobility proposed for this facility by any local agencies or included in bicycle master plans? If yes, describe (including location, time frame, funding, etc.). N/A
c	Are there any external bicycle advocacy groups and bicycle advisory committees that should be included in the project stakeholder list? If so, provide contact information. N/A
	<b>FINAL PID INFORMATION</b>
d	Will bicycle travel deficiencies be corrected? How or why not? N/A
e	How will this project affect local agency plans for bicycle safety and mobility improvements? N/A
f	If the project is the construction of a new freeway or modification to an existing freeway, will it sever or destroy existing provisions for bicycle travel? If yes, describe how bicycle travel provisions will be included in this project. Project will not impact provisions for bicycle travel

#### 10. Pedestrian including Americans with Disabilities Act (ADA):

	<b>INITIAL PID INFORMATION</b>
a	Does this facility provide for pedestrian safety and mobility needs? If so, describe pedestrian facilities. Do continuous and well-maintained sidewalks exist? Are pedestrians forced to walk in the roadway at any locations due to lack of adequate pedestrian facilities? Please explain. N/A
b	Are pedestrian crossings located at reasonable intervals? N/A
c	Are all pedestrian facilities within the corridor ADA accessible and in compliance with Federal and State ADA laws and regulations? N/A
	<b>FINAL PID INFORMATION</b>
d	Will pedestrian travel deficiencies be corrected? How or why not? N/A
e	How will this project affect local agency plans for pedestrian safety and mobility improvements? N/A
f	If the project is the construction of a new freeway or modification to an existing freeway, will it sever or destroy existing provisions for pedestrian travel? If yes, describe how pedestrian travel provisions will be included in this project. N/A

g	Are there any external pedestrian advocacy groups and advisory committees that should be included in the project stakeholder list? If so, provide contact information.
	N/A
h	Have ADA barriers as noted in the District's ADA Transition Plan been identified within the project limits? If not included in the project, provide justification and indicate whether District Design coordinator approval was obtained.
	N/A

**11. Equestrian:**

	INITIAL PID INFORMATION
a	If this corridor accommodates equestrian traffic, describe any project features that are being considered to improve safety for equestrian and vehicular traffic?
	N/A
	FINAL PID INFORMATION
b	Have features that accommodate equestrian traffic been identified? If so, are they included a part of this project? Describe. If no, why not?
	N/A

**12. Intelligent Transportation Systems (ITS):**

	INITIAL PID INFORMATION
a	Have ITS features such as closed-circuit television cameras, signal timing, multi-jurisdictional or multimodal system coordination been considered in the project? Y <u>X</u> /N__. If yes, describe. If no, explain.
	The Electronic Tolling System (ETS) will be developed at later phase.
	FINAL PID INFORMATION
b	Have ITS features been identified? If so, are they included a part of this project? Describe. If no, why not?
	Yes.



04 - SCI - 101 - PM 16.00/52.55  
04-SCI-85 – PM 23.0/24.1  
EA #04-2G710K, 0400001163

## **ATTACHMENT H**

### **Right of Way Conceptual Cost Estimate**

## CONCEPTUAL COST ESTIMATE – RIGHT OF WAY COMPONENT DESIGN VARIATION 1

To:

May 2012

From:

04-SC1-101-PM 16.00/52.55

04-SC1-85-PM 23.0/24.1

Project ID

EA # 04-2G710K

101 Express Lanes

A Field Review was conducted \_\_\_\_ Yes X No

### Scope of the Right of Way

Provide a general description of the right of way including the location attributes.

Right of Way Required X Yes \_\_\_\_ No

Number of Parcels X 1-10 \_\_\_\_ 11-25 \_\_\_\_ 26-50 \_\_\_\_ 51-100 \_\_\_\_ >100

X Urban \_\_\_\_ Rural

Land Area: Fee \_\_\_\_\_ Easement 4,718 sq. ft

Displaced Persons/Businesses \_\_\_\_ Yes X No

Demolition/Clearance \_\_\_\_ Yes X No

Railroad Involvement \_\_\_\_ Yes X No

Utility Involvements X Yes \_\_\_\_ No 474 Number of Utilities in area

### Cost Estimates

Support Costs

\_\_\_\_ \$0-\$25,000

X \$25,001-\$100,000

\_\_\_\_ \$100,001-\$250,000

\_\_\_\_ \$250,001-\$500,000

\_\_\_\_ \$500,001-\$1,000,000

\_\_\_\_ \$1,000,001-\$5,000,000

\_\_\_\_ \$5,000,001-\$10,000,000

\_\_\_\_ >\$10,000,000

Capital Costs

\_\_\_\_ \$0-\$100,000

X \$100,001-\$500,000

\_\_\_\_ \$500,001-\$1,000,000

\_\_\_\_ \$1,000,001-\$5,000,000

\_\_\_\_ \$5,000,001-\$15,000,000

\_\_\_\_ \$15,000,001-\$50,000,000

\_\_\_\_ \$50,000,001-\$100,000,000

\_\_\_\_ >\$100,000,000

### Schedule

Right of Way will require 30 months to deliver a Right of Way Certification #1 from Final R/W Maps. This estimate is based on a Right of Way Certification date of December, 2014.

**Areas of Concern:**

There are no anticipated areas of concern that may result in major conflict or added cost/schedule to the project at this time, for Design Variation 1.

**Assumptions and Limiting Conditions**

Temporary Construction Easements (TCEs) are anticipated to construct concrete barriers, sound walls, and retaining walls as required for Design Variation 1. No permanent right of way acquisitions are anticipated. Utility relocations are anticipated. This will be further evaluated during the PA/ED phase.

## CONCEPTUAL COST ESTIMATE – RIGHT OF WAY COMPONENT DESIGN VARIATION 2

To:

May 2012

From:

04-SC1-101-PM 16.00/52.55

04-SC1-85-PM 23.0/24.1

Project ID

EA # 04-2G710K

101 Express Lanes

A Field Review was conducted X Yes        No

### Scope of the Right of Way

Provide a general description of the right of way including the location attributes.

Right of Way Required X Yes        No

Number of Parcels        1-10        11-25        26-50        51-100 X >100

X Urban        Rural

Land Area: Fee 775,593 sq. ft

Easement 800,820 sq. ft

Displaced Persons/Businesses X Yes        No

Demolition/Clearance X Yes        No

Railroad Involvement X Yes        No

Utility Involvements X Yes        No 474 Number of Utilities in area

### Cost Estimates

Support Costs

       \$0-\$25,000

       \$500,001-\$1,000,000

       \$25,001-\$100,000

       \$1,000,001-\$5,000,000

       \$100,001-\$250,000

       \$5,000,001-\$10,000,000

       \$250,001-\$500,000

X >\$10,000,000

Capital Costs

       \$0-\$100,000

       \$5,000,001-\$15,000,000

       \$100,001-\$500,000

       \$15,000,001-\$50,000,000

       \$500,001-\$1,000,000

       \$50,000,001-\$100,000,000

       \$1,000,001-\$5,000,000

X >\$100,000,000

### Schedule

Right of Way will require 30 months to deliver a Right of Way Certification #1 from Final R/W Maps. This estimate is based on a Right of Way Certification date of December, 2014.

## Areas of Concern:

Two areas were identified as possible key areas of concern; the US 101/SR 237 Interchange and the PG&E substation at Metcalf Road and US 101. The area surrounding the US 101/SR 237 Interchange was identified as a paleontological sensitive area. Under California law, paleontological resources are protected by California Environmental Quality Act (CEQA). CEQA requires that a determination be made as to whether a project would directly or indirectly destroy a unique paleontological resource or site or unique geological feature. If an impact is significant, CEQA requires feasible measures to minimize the impact. Additionally, the PG&E substation at Metcalf Road and US 101, feeds several high voltage transmission lines, some which cross US 101 and some which run adjacent to US 101 outside of the Caltrans right of way. Complex issues concerning major utility relocation may arise near the PG&E substation due to right of way acquisitions.

Existing frontage roads which run adjacent to US 101 within the scope of the project, may need to be relocated due to right of way acquisitions. Relocating an existing frontage will require rerouting of all the access points connected with the frontage road. Additionally, all utilities running along each impacted frontage road will need to be relocated, to avoid longitudinal encroachment.

Based on findings in the Initial Site Investigation, thirteen potential hazardous materials sites were identified. Eleven were identified as a result of environmental database searches and two were found as a result of reviews of historical reports and a site reconnaissance. Lead, copper, organic wastes containing trichloroethane, volatile organic compounds, vinyl chloride, dichloroethylene, diesel fuel, oxygenates, gasoline, methyl tertiary butyl ether, hydrocarbons from gasoline and other petroleum products have been found adjacent to the project corridor. Parcels containing contaminants will require additional investigation to determine environmental impacts. [See Table 1: Potential Hazardous Materials Sites Impacting the Project Area]

**Table 1: Potential Hazardous Materials Sites Impacting the Project Area**

Owner or Occupant/ Address	Description
<b><i>East Charleston Business Park</i></b> 2513 East Charleston Road, Mountain View, CA 94043	<i>Open - Remediation; RWQCB (Region 2) lead; site is an operating office complex. COC - TCE. Groundwater monitoring being performed at the site on voluntary basis to remediate TCE and other halogenated VOCs. Groundwater has been encountered at 6 to 8 feet bgs and determined to flow in generally northerly direction toward the Bay. TCE has been identified as constituent of concern with detected levels up to 1,300 µg/L.</i>
<b><i>CTS Printex Corporation</i></b> Plymouth and Colony Streets, Mountain View, CA 94043	<i>Inactive; CTS Printex Corp. manufactured printed circuit boards from 1966-1985; SWRCB (lead); COCs - acid waste water containing copper, lead, and organic wastes containing trichloroethane (TCA), TCE and other solvents. High levels of TCE, 1,1,1-TCA, and 1,1-DCE in monitoring wells downgradient of the site. In October 1986 California DHS certified closure of the facility. Company is pumping water and discharging to Mountain View sanitary sewer. The company continues to monitor to define plume of contaminated ground water. The RWQCB issued a cleanup and abatement order in March 1987.</i>

<b>Teledyne Semiconductors Inc.</b>  1300 Terra Bella Ave, Mountain View, CA 94043	Manufactured semiconductors since 1962; SWRCB (lead); NPL site. The site has used a variety of toxic chemicals, primary chlorinated organic solvents which contaminate ground water. Investigation in June 1984 revealed that contaminants had migrated to the north and had affected approximately 50 private domestic wells. Teledyne is planning on pumping the contaminated groundwater in upper aquifer to the surface for subsequent treatment.  Spectra-Physics has manufactured electronic and gas lasers. Soil and GW samples collected contained TCE, TCA, and 1,2-DCE. In February 1990, Spectra Physics installed vapor extraction system to reduce influence of contaminants in soil.
<b>Spectra-Physics Inc.</b>  1250 W Middlefield Road, Mountain View, CA 94042	The Teledyne NPL site is being managed in conjunction with the Spectra-Physics NPL site, as the contaminant plumes have merged.
<b>Caltrans Maintenance Yard</b> Old Middlefield Way at southbound US 101 on-ramp	Caltrans maintenance yard
<b>Former Moffett Field Naval Air Station</b> Moffett Field, Mountain View, CA 94035	Currently on the NPL. The major contaminants in groundwater are volatile organic compounds. Facilities at these sites have used a variety of toxic chemicals, primarily chlorinated organic solvents, which contaminated a common groundwater basin. Although these sites are listed separately, USEPA intends to apply an area-wide approach to the problem as well as take site-specific action as necessary.
<b>Vacant</b> 870 Leong Drive, Mountain View, CA 94043	Former Denny's restaurant. Open - Site Assessment, RWQCB (Region 2), Cleanup Program Site. Potential Media Affected: Other Groundwater (uses other than drinking water), Soil. Under Investigation. Potential COCs: Other Chlorinated Hydrocarbons, TCE. Groundwater beneath the site is contaminated with chlorinated VOCs. There was no indication that a release of hazardous materials ever occurred at the site. Contamination at the site appears to be the result of various off-site sources.
<b>Intel Corporation/Fairchild Semiconductor/Memory and High Speed Logic/NEC Electronics America Inc.</b>  365 Middlefield Road/313 Fairchild Drive, Mountain View, CA	Intel Site: SWRCB- lead; VOCs (TCE, DCE, and vinyl chloride) have been detected in soil and shallow groundwater at the site and in shallow groundwater downgradient of the site. Since 1982 Intel has been pumping groundwater and treating by carbon adsorption. This is part of the MEW joint NPL cleanup site.  Site believed to be currently occupied by Opcode, World Energy Labs and Skywatch Energy.
<b>National Semiconductor</b>	National Semiconductor Corp. manufactures electronic equipment at a

2900 Semiconductor Drive, Santa Clara, CA 95051	plant in Santa Clara. The facility occupies about 50 acres and is surrounded by residential, industrial, and commercial business areas. Monitoring wells on the site are contaminated with vinyl chloride, TCE, 1,1-DCE resulting from LUSTs. Contamination has migrated off-site affecting approximately 300,000 people who depend on drinking water wells located within 3 miles of the facility. Under direction by RWQCB, USEPA and CA-DHS, the company has commenced a program of pumping and treating groundwater contamination. <b>Currently on the Final NPL.</b>
<b>Hellwig Family Limited</b> 1301 Laurelwood Road, Santa Clara, CA 95054	LUST Cleanup Site, Open - Site Assessment, Potential COC: Diesel, Fuel Oxygenates, Gasoline, MTBE. September 2011, site closure request submitted to SCCDEH (Low Risk Groundwater Fuel Release Case).
<b>DTG Operations Inc.</b> 2251 Airport Boulevard, San Jose, CA 95131	Open - Site Assessment, Santa Clara County LOP, Cleanup Program Site, Potential COC: Gasoline, Other Petroleum. Possible sources of contamination are aboveground fuel storage tanks, car washes and likely oil-water separator. Six soil samples were collected and only analyzed for Total Recoverable Petroleum Hydrocarbons and reported concentrations between 230 and 2,300 parts per million (ppm).
<b>Action Forklift</b> 1441 Terminal Avenue, San Jose, CA 95112	LUST Cleanup Site, Open - Site Assessment, Santa Clara County LOP, Potential COC: Gasoline. The soil vapor samples data indicate the presence of a wide range of hydrocarbon compounds in shallow soil vapor, with the highest concentrations generally occurring in soil-gas samples SV2, SV3, and SV4. For select compounds such as acetone and xylenes, the highest concentrations occur in SV5. A comparison of detected hydrocarbon levels in soil gas with available environmental screening levels (ESLs) for residential and commercial/industrial land use indicates that only benzene has exceeded residential ESLs. None of the detected chemicals exceeded available commercial/industrial ESLs, suggesting the absence of significant risks associated with the vapor intrusion exposure pathway. This work is summarized in PIERS' "Report of Additional Phase II Site Investigation" dated October 27, 2008.
<b>Safety Kleen Corporation</b>  1147 10 <sup>th</sup> Street, San Jose, CA 95112	Open - Inactive, RWQCB (Region 2), Cleanup Program Site, Potential COC: Solvents. Facility Status: Leak being confirmed. As of 2009, the site remains open with no other regulatory agency oversight activities being conducted by the lead agency (in this case, RWQCB). The site is listed as a SLIC, AST, Historic UST, and RCRA-SQG with known soil impacts from solvents. Groundwater impacts are unknown.
<b>PG&amp;E electrical substation, Intersection of Metcalf Road and US 101</b>	Large electrical substation.

**Assumptions and Limiting Conditions**

Temporary Construction Easements (TCEs) are anticipated to construct concrete barriers, sound walls, and retaining walls as required for Design Variation 2. Utility relocations are anticipated. This will be further evaluated during the PA/ED phase.

Right of way acquisitions for Design Variation 2 were estimated based on the required area needed for minimum standard cross sectional features. Anticipated TCEs were assumed to extend 10 feet out perpendicularly from all areas where right of way acquisitions are anticipated. An estimated cost of \$250 per square foot of right of way acquisition was used to determine the costs of the right of way acquisition for Design Variation 2. Utility relocation costs were estimated to be 50% of the total right of way acquisition cost.



04 - SCI - 101 - PM 16.00/52.55  
04-SCI-85 – PM 23.0/24.1  
EA #04-2G710K, 0400001163

# **ATTACHMENT I**

## **Risk Management Plan**

Project Risk Register  
PID Phase

DIST- EA 04-2G710K						Project Name: US 101 Express Lanes Project			Project Manager: Chadi Chazbek (URS Corporation)							Date Created: 01/26/12	Last Updated: 07/12/12
						Co - Rte - PM: SCL-101, PM 16.0-52.55 SCL-85, PM 23.0/24.1			Telephone: (408) 297-9585								
ITEM	ID #	Status	Threat / Oppor-tunity	Category	Date Risk Identified	Risk Description	Root Causes	Primary Objective	Overall Risk Rating	Cost/Time Impact Value	Risk Owner	Risk Trigger	Strategy	Response Actions w/ Pros & Cons	Adjusted Cost/Time Impact Value	WBS Item	Status Date and Review Comments
	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)
1	04-2G710K-01	Active	Threat	ENV	01/26/12	TMDL (Total Maximum Daily Load) Standards change.	New standards could result in a revised scope of work, cost changes and project delays. Revised scope could require additional environmental work that could impact the schedule. The changes could be positive or negative.	TIME	Probability 1=Very Low (1-9%)  Low  Impact 4 =High		VTA, Lam Trinh  (408) 952-4217  <a href="mailto:lam.trinh@vta.org">lam.trinh@vta.org</a>	Monitor RWQCB announcements for standard changes	MITIGATE	Work with SF Bay RWQCB to monitor TMDL standards. If TMDL standards change, provide additional BMP's to minimize project impacts.			
2	04-2G710K-02	Active	Threat	DESIGN Roadway	01/26/12	Hazardous Material encountered.	The project will involve soil disturbance along the existing highway. Because of the age and history of the US 101 corridor, it is possible that initial testing will reveal hazardous materials needing additional investigation causing project costs to increase. Findings of any hazardous materials may result in the schedule and/or cost of the project needing to be updated.	COST	Probability 2=Low (10-19%)  Low  Impact  2 =Low		VTA, Lam Trinh  (408) 952-4217  <a href="mailto:lam.trinh@vta.org">lam.trinh@vta.org</a>	ISA identifies potential contamination and soil samples during the hazardous waste soil investigation confirm the findings	MITIGATE	CT Initial Site Assessment checklist will be completed, and a memorandum prepared that summarizes the assessment steps and findings.			
3	04-2G710K-04	Active	Threat	PM	01/26/12	New stakeholder needs.	New stakeholders and/or new stakeholder needs could be identified late in the project. As a result, the scope, cost, and/or schedule could be affected.	TIME	Probability 2=Low (10-19%)  Low  Impact 2 =Low		VTA, Lam Trinh / CT, Nick Saleh  (408) 952-4217 / (510) 286-6355  <a href="mailto:lam.trinh@vta.org">lam.trinh@vta.org</a> / <a href="mailto:nick_saleh@dot.ca.gov">nick_saleh@dot.ca.gov</a>	new stakeholder requests resulting in scope, cost, or schedule changes	MITIGATE	Obtain major stakeholder buy-in during PA&ED phase including CT Maintenance. Hold public workshops to get input.			
4	04-2G710K-05	Active	Threat	PM	01/26/12	Unexpected environmental issues during construction	Unexpected environmental issues (archaeological, biological, etc.) could lead to schedule delays and increased mitigation costs.	TIME	Probability 2=Low (10-19%)  Med  Impact  4 =Med		VTA, Lam Trinh  (408) 952-4217  <a href="mailto:Lam.Trinh@vta.org">Lam.Trinh@vta.org</a> / <a href="mailto:nick_saleh@dot.ca.gov">nick_saleh@dot.ca.gov</a>	Comments from CT or the public requesting such changes	MITIGATE	Coordination with CT is necessary to discuss & analyze alternatives. Reviews will be conducted in order to minimize the additional forecasting work.			
5	04-2G710K-07	Active	Threat	DESIGN Roadway	01/26/12	Man-made Buried objects.	Construction crews may encounter buried man-made objects that are not shown on the plans. The contractor will need to be compensated for handling such items, resulting in increased costs.	COST	Probability 2=Low (10-19%)  Low  Impact 2 =Low		VTA, Lam Trinh  (408) 952-4217  <a href="mailto:Lam.Trinh@vta.org">Lam.Trinh@vta.org</a>	Field review before construction indicate signs of buried man-made objects	ACCEPT	Every effort should be made to discover these objects during the planning and design phases. Added cost for those that are not found should be covered by the 5% contingencies.			
6	04-2G710K-08	Active	Threat	PM	01/26/12	Migratory birds.	If nesting birds are found, designated areas of the construction site could be off limits, which could cause construction delays.	TIME	Probability 2=Low (10-19%)  Low  Impact 2 =Low		VTA, Lam Trinh  (408) 952-4217  <a href="mailto:Lam.Trinh@vta.org">Lam.Trinh@vta.org</a>	Field review spots nesting or other evidence of migratory birds presence	ACCEPT	Early investigation of nesting bird habitat will be included in the Minimal Impact NES to try to identify any habitats and avoid if possible.			
									Probability 2=Low (10-19%)		VTA, Lam Trinh						

Project Risk Register  
PID Phase

DIST- EA      04-2G710K						Project Name: US 101 Express Lanes Project			Project Manager: Chadi Chazbek (URS Corporation)							Date Created:	Last Updated:
Co - Rte - PM:			SCL-101, PM 16.0-52.55 SCL-65, PM 23.0/24.1			Telephone: (408) 297-9585					01/26/12	07/12/12					
ITEM	ID #	Status	Threat / Opport-unity	Category	Date Risk Identified	Risk Description	Root Causes	Primary Objective	Overall Risk Rating	Cost/Time Impact Value	Risk Owner	Risk Trigger	Strategy	Response Actions w/ Pros & Cons	Adjusted Cost/Time Impact Value	WBS Item	Status Date and Review Comments
	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)
7	04-2G710K-09	Active	Threat	R/W	01/26/12	Electrical facility designs do not reflect field conditions	Work will need to be done to connect vehicle sensors, highway lighting, & highway signs to electrical and communication services. As built may not reflect accurate field conditions of existing electrical and communication facilities, necessitating field changes that would increases project cost and schedule delays.	TIME	Med		(408) 952-4217	QA/QC finds discrepancy between design and site conditions or as-built plans	ACCEPT	Early coordination with CT, PG&E, and AT&T for identification of existing utilities and connection availability in order to reposition any equipment is necessary to avoid delays and additional costs. Potholing will be conducted during PA/ED and PS&E phases.			
									Impact								
									4 =High		Lam.Trinh@vta.org						
8	04-2G710K-10	Active	Threat	DESIGN Roadway	01/26/12	Providing justification for Design Standards Exceptions	Exceptions from Design Standards will be required to keep the project within scope/schedule and budget. Some potential issues may be lane width, median width, interchange spacing, local access, and tolling/enforcement zones.	COST	Probability 4=High (40-59%)		VTA, Lam Trinh	Requests from CT Geometricians during the GAD review process	ACCEPT	Early coordination with Caltrans Design Reviewers, with regular follow-up and close out meetings.			
									High		(408) 952-4217						
									Impact		Lam.Trinh@vta.org						
									5 =Very High								
9	04-2G710K-11	Active	Threat	DESIGN Roadway	01/26/12	Floodplain issues and median barrier treatment.	Project vulnerability to flooding is not likely. If found, additional project costs and schedule delays can occur.	COST	Probability 1=Very Low (1-9%)		VTA, Lam Trinh	Discussion with SCVWD and FEMA, or hydrological modeling identifies project impact	ACCEPT	Early assessment of alignment's vulnerability to flooding will be developed through LHS during PAVED phase.			
									Low		(408) 952-4217						
									Impact		Lam.Trinh@vta.org						
									1 =Very Low								
10	04-2G710K-12	Active	Threat	DESIGN Roadway	01/26/12	Geotechnical site conditions reveal poor soil conditions for sign structures	Geotechnical testing could encounter vulnerability to geologic hazards, soil-related hazards, unsuitable materials, &/or other impacts which would have an impact on the project cost and may delay schedule.	COST	Probability 1=Very Low (1-9%)		VTA, Lam Trinh	Geotechnical investigation during PS/E phase finds poor soil conditions.	ACCEPT	Geotechnical Assessment Report (GAR) will be prepared during PA/ED to provide recommendations for design accompanied by a memorandum or document assessing any impacts.			
									Low		(408) 952-4217						
									Impact		Lam.Trinh@vta.org						
									2 =Low								
11	04-2G710K-13	Active	Threat	PM	01/26/12	Express Lanes Concept	Elements of operations of the facility, such as hours of operations, signage, striping, and access locations, may cause driver confusion, decrease utilization, and/or opposition for initiation.	TIME	Probability 3=Med (20-39%)		VTA, Lam Trinh	Initial response from the Public during the public scoping meeting at the beginning of the PA/ED phase	AVOID	Develop signing plan that will allow for evolution of message provided to motorists & conduct focus group studies.			
									Low		(408) 952-4217						
									Impact		Lam.Trinh@vta.org						
									2 =Low								
12	04-2G710K-14	Active	Threat	PM	01/26/12	Coordination with other projects.	Other planned and proposed projects in the area could impact the scope, schedule and cost of the project. See PSR/PDS for list of projects	TIME	Probability 4=High (40-59%)		VTA, Lam Trinh	Published schedules of other projects show conflict with the express lanes project	MITIGATE	Periodically review potential conflicting projects and confirm their direction through the Executive Steering Committee.			
									High		(408) 952-4217						
									Impact		Lam.Trinh@vta.org						
									4 =High								



Project Risk Register  
PID Phase

DIST- EA 04-2G710K						Project Name: US 101 Express Lanes Project			Project Manager: Chadi Chazbek (URS Corporation)							Date Created:	Last Updated:
						Co - Rte - PM: SCL-101, PM 16.0-52.55 SCL-85, PM 23.0/24.1			Telephone: (408) 297-9585							01/26/12	07/12/12
ITEM	ID #	Status	Threat / Opport-unity	Category	Date Risk Identified	Risk Description	Root Causes	Primary Objective	Overall Risk Rating	Cost/Time Impact Value	Risk Owner	Risk Trigger	Strategy	Response Actions w/ Pros & Cons	Adjusted Cost/Time Impact Value	WBS Item	Status Date and Review Comments
	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)
13	04-2G710K-15	Active	Threat	PM	01/26/12	Competing construction projects.	Due to CMIA funding opportunity, many projects in the area will be on a very aggressive schedule could potentially still be in construction when US 101 is out to bid. These projects could be competing for bid services from contractors and material sources, potentially raising prices.	COST	Probability		VTA, Lam Trinh	Bid results and construction schedules of adjacent projects start showing a trend of increased costs or increased delays	MITIGATE	Track competing projects and try to schedule construction with them in mind.			
									3=Med (20-39%)		(408) 952-4217						
									Med								
									Impact		Lam.Trinh@vta.org						
									4 =High								
14	04-2G710K-16	Active	Threat	ENV	01/26/12	Conceptual Environmental Mitigation Issues & Cultural Resources Issues	Working with resource agencies to agree on reasonable mitigation ratios & on-going Native American Consultation Process during the environmental and construction phases.	COST	Probability		VTA, Lam Trinh	Early discussions with resources agencies identify higher than expected mitigation rations	ACCEPT	Early coordination with resource agencies & Native American Groups. Continue VTA discussions on programmatic permittling (HCP) and mitigation banking.			
									3=Med (20-39%)		(408) 952-4217						
									Med								
									Impact		Lam.Trinh@vta.org						
									4 =Med								
15	04-2G710K-17	Active	Threat	CON	01/26/12	Traffic Operations: Pull-out Locations are not ideally situated	A lack of maintenance vehicle &/or enforcement pull-outs may impede operations by causing more closures than planned & loss of citations. If MVPs required, there is a chance the ED would not be sufficient and costs would increase to redesign the facility and purchase R/W.	COST	Probability		VTA, Lam Trinh	CT maintenance review of design plans at various stages of the project	ACCEPT	Begin early communication with CT about feasibility and need for pull-outs. Pull-out areas will be identified in collaboration with the CHP and CT Maintenance during the early stages of design. Co-locate facilities with ramp metering facilities.			
									3=Med (20-39%)		(408) 952-4217						
									Med								
									Impact		Lam.Trinh@vta.org						
									4 =Med								
16	04-2G710K-18	Active	Threat	ENV	01/26/12	ETS Implementation & Testing Schedule	Contractor & Integrator must coordinate installation activities to successfully open the express lane. Lack of coordination will cause delays of roadway or ETS construction and/or installation, could result in claims from the roadway and ETS contractor, loss of revenue collection and additional project costs.	COST	Probability		VTA, Lam Trinh	Delays in either roadway or SI schedule	ACCEPT	Provide RFP & specification language to define interface. VTA to develop construction CPM schedule & incorporate windows in roadway contractor contract. Consider a reserve to pay for acceleration of integrator and/or contractor.			
									2=Low (10-19%)		(408) 952-4217						
									Med								
									Impact		Lam.Trinh@vta.org						
									4 =High								
17	04-2G710K-19	Active	Threat	DESIGN Roadway	01/26/12	Ingress/Egress Geometrics not approved by CT	The exact configuration of the access point will need to be determined and agreed to by the various stakeholders. This can lead to delays in schedule.	TIME	Probability		VTA, Lam Trinh	CT review of proposed access configurations	ACCEPT	Adopt a configuration for the ingress/egress consistent with CT input.			
									2=Low (10-19%)		(408) 952-4217						
									Low								
									Impact		Lam.Trinh@vta.org						
									4 =High								
18	04-2G710K-20	Active	Threat	DESIGN Structures	01/26/12	Using existing sign structures & bridges to mount equipment	Because of the high number of sign structures & bridges along the corridor, equipment may be mounted on them which would require a lengthy review process.	TIME	Probability		VTA, Lam Trinh	Design determines that putting the signs on an OC is the only viable option	AVOID	Will avoid using existing sign structures & bridges for mounting equipment.			
									2=Low (10-19%)		(408) 952-4217						
									Low								
									Impact		Lam.Trinh@vta.org						
									2 =Low								

Project Risk Register  
PID Phase

DIST- EA      04-2G710K						Project Name: US 101 Express Lanes Project			Project Manager: Chadi Chazbek (URS Corporation)					Date Created: 01/26/12		Last Updated: 07/12/12	
Co - Rte - PM: SCL-101, PM 16.0-52.55 SCL-85, PM 23.0/24.1						Telephone: (408) 297-9585											
ITEM	ID #	Status	Threat / Oppor-tunity	Category	Date Risk Identified	Risk Description	Root Causes	Primary Objective	Overall Risk Rating	Cost/Time Impact Value	Risk Owner	Risk Trigger	Strategy	Response Actions w/ Pros & Cons	Adjusted Cost/Time Impact Value	WBS Item	Status Date and Review Comments
	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)
19	04-2G710K-21	Active	Threat	DESIGN Roadway	01/26/12	ETS, VDS, & RTMS Equipment Locations too far from power and communication sources	ETS, VDS, & RTMS equipment locations may require costly power and communication runs if cannot be placed near existing sources.	COST	Probability 3=Med (20-39%)		VTA, Lam Trinh	Review of PG&E and AT&T plans identifies large gaps in available service points	ACCEPT	Will position equipment in order to minimize costs.			
									Med		(408) 952-4217						
									Impact 3 =Med		Lam.Trinh@vta.org						
20	04-2G710K-22	Active	Threat	DESIGN Roadway	01/26/12	Unforeseen utility conflicts	Utility relocations could be needed due to conflict of policy (clear recovery) when no utility relocations are anticipated. Early identification and coordination with utility service providers may still be insufficient. Delay of R/W Certification & project delivery.	TIME	Probability 3=Med (20-39%)		VTA, Lam Trinh	Review of utility plans determines utility relocation is needed	ACCEPT	Early identification and coordination of utilities within the project limits. Adjust locations of facilities if conflicts arise. Potholing will be conducted during PAVED phase to minimize conflicts.			
									Med		(408) 952-4217						
									Impact		Lam.Trinh@vta.org						
									4 =Med								